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HUMAN REMAINS DISCOVERED IN THE *BASILICA D* FROM *TROPAEUM TRAIANI*

A. D. SOFICARU

The human remains were discovered in the *Basilica D* from the Roman city *Tropaeum Traiani* (Adamclisi village, Constanța County) in 1998. They consist in two individuals, but in cranial fragments. One of them has a skull and it belongs to a female of 20 years age at death, and the other one presents just four fragments of cranial bones from a person about 12–13 years old.

INTRODUCTION

During the archaeological excavations on the *Basilica D* in 1998, there were discovered human bones at 3.20 m from the wall of church by Dr. Alexandru Barnea*, Professor at the Faculty of History, University of Bucharest (see the “Report of archaeological survey, year 1998”). It is about a burial with west-eastern orientation. In fact there are human bones from two individuals, a skull almost entire and some fragments from the maxillary.

METHOD

For the bones description the book of White & Folkens (2005) was used and *Standards for data collection from human skeletal remains* (Buikstra & Ubelaker 1994) was applied for sex determination, age estimation, and cranial measurements.

STUDY

Skeleton 1

Description. Skeleton 1 consists only in a skull almost complete but with some missing parts in the basilar region. On the occipital bone the inferior region

* To whom we thank for the skull and for the information

from the inferior nuchal line to the foramen magnum is missing. On the right temporal bone the mastoid process with petrous pyramid is missing. The sphenoid has not the body, and the left maxilla has not the maxillary sinus. The mandible has not been preserved.

Six teeth are present on the left side: canine, both premolars, and all the molars; on the right side: molar 1 and 2. The rest of them were lost postmortem.

Sex determination. The scored sexual dimorphic cranial features assign a female. For this the nuchal crest, mastoid process, supra-orbital margin and supra-orbital ridge were recorded (Buikstra & Ubelaker 1994, p. 20).

Age estimation. The cranial sutures are open and indicate an age at death of about 20 years (Buikstra & Ubelaker 1994, p. 32). Also, the left third molar is erupted but not in occlusion and the right one is still in the alveolar margin.

Measurements. 26 cranial measurements were performed (Buikstra & Ubelaker 1994, p. 74 – 77).

Table 1
Cranial measurements

Cranial measurements	Value (mm)
Maximum cranial length (g – op)	185
Maximum cranial breath (eu – eu)	149
Bizygomatic diameter (zy – zy)	131
Basion – bregma height (ba – b)	–
Cranial base length (ba – n)	–
Basion – prosthion (ba – pr)	–
Maxillo – alveolar breadth (ecm – ecm)	62 2
Maxillo – alveolar length (pr – alv)	47 4
Biauricular breadth (au – au)	–
Upper facial height (n – pr)	64 7
Minimum frontal breadth (ft – ft)	101
Upper facial breadth (fnt – fnt)	105 7
Nasal height (n – ns)	48 8
Nasal breadth (al – al)	23 3
Right orbital breadth (d – ec)	41 6
Left orbital breadth (d – ec)	39 1
Right orbital height	32 6
Left orbital height	32 7
Interorbital breadth (d – d)	19 5
Frontal chord (n – b)	113 6
Parietal chord (b – l)	108 1
Occipital chord (l – o)	–
Foramen magnum length (ba – o)	–
Foramen magnum breadth	–
Right mastoid length	–
Left mastoid length	37 1

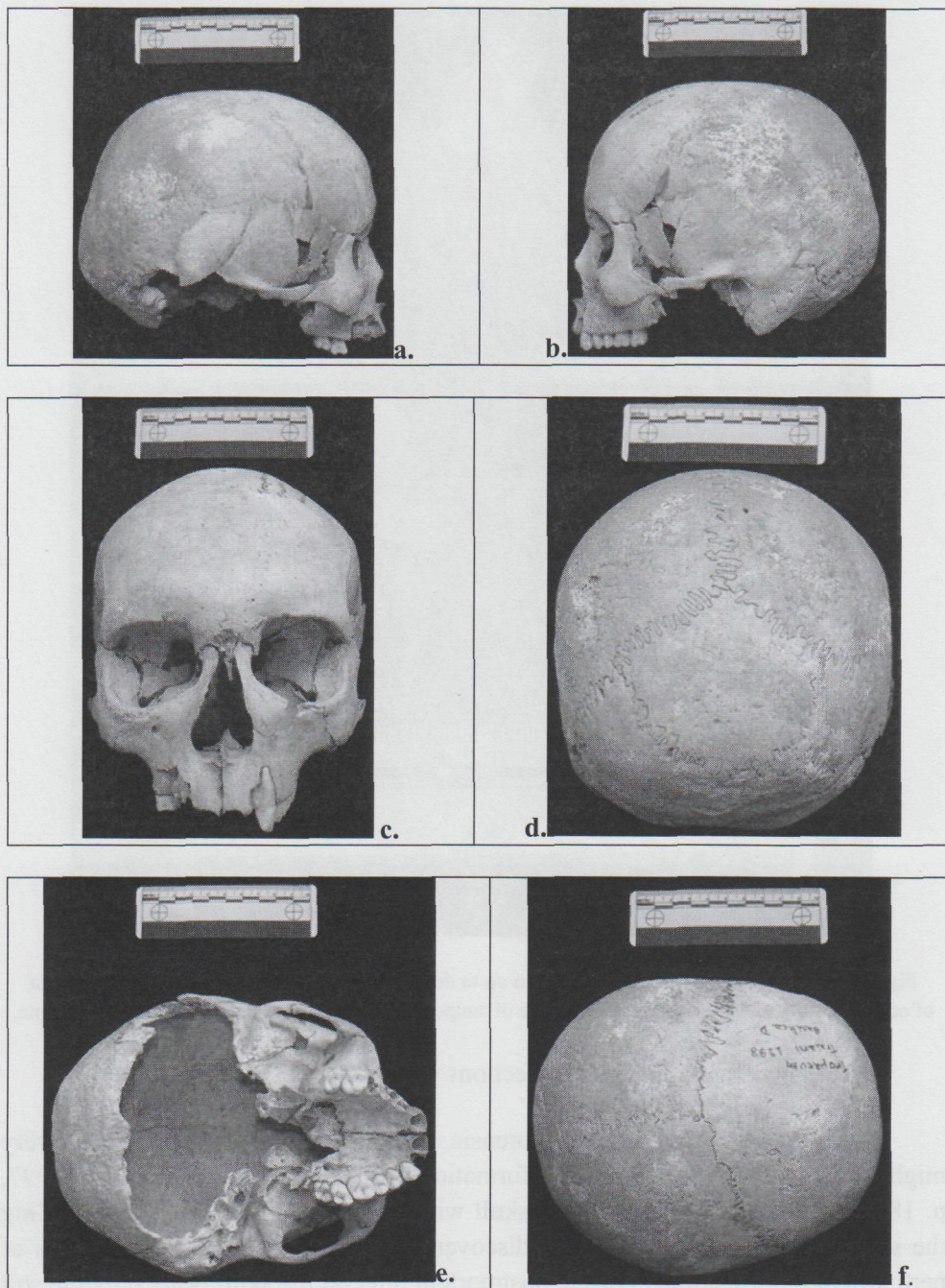


Fig. 1 – Skeleton 1, cranial views: a. Right lateral view; b. Left lateral view; c. Anterior view; d. Posterior view; e. Superior view; f. Inferior view.

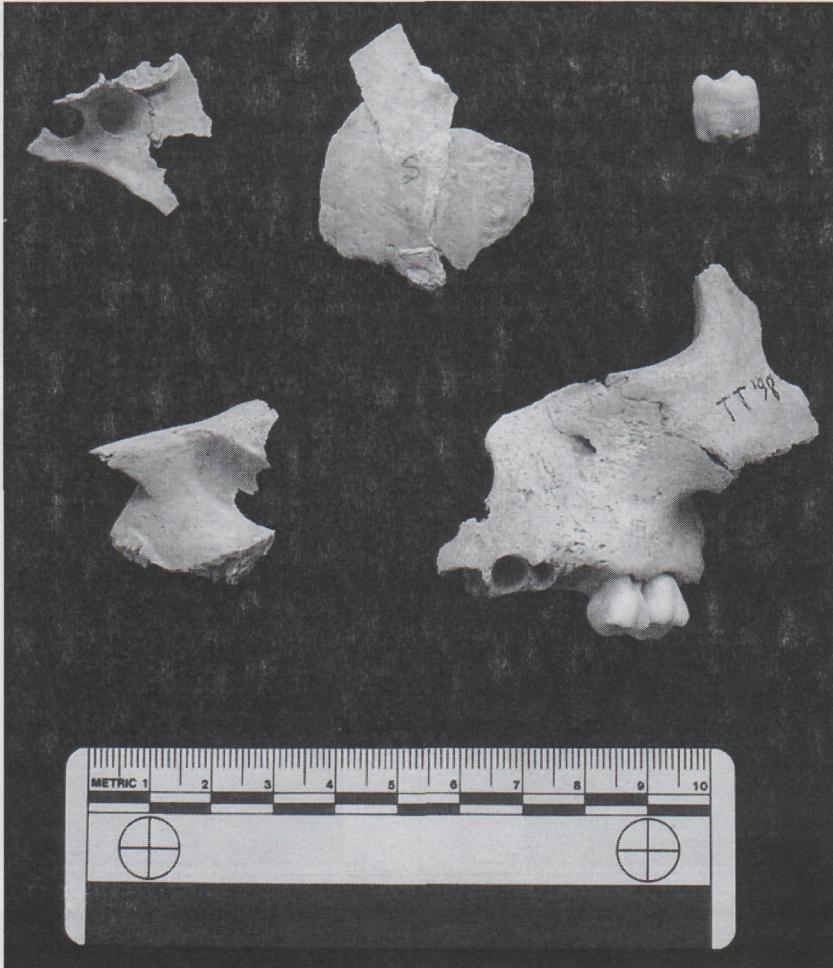


Fig. 2 – Skeleton 2, from left to right and to up to down: right lesser wing of sphenoid, fragment of occipital, right molar 3 maxillary, left piece of temporal bone, left maxilla with the zygomatic bone.

Pathology. No pathological affections were observed on the skull.

Taphonomy. Applying the forensic taphonomic model to our discovery might show us the postmortem transformation of the bone (Haglund & Sorg 1997, p. 18). The object of our study is a skull with no post-cranial remains. Regarding the space of deposit, the skull was discovered in a grave. There are no traces of perimortem modifications. For the postmortem interval the skull bears only the soil influence: the color is yellowish – brown, the ectocranial surface has some deteriorate area, and all the cracks are old (Haglund & Sorg 1997, p. 19).

Skeleton 2

Description. The skeleton 2 consist of four cranial fragments: left maxilla with the zygomatic bone, a piece of left temporal bone (with articular eminence and mandibular fossa), the right lesser wing of sphenoid, and a fragment (44.6x36.1 mm) of occipital from de left side with a little portion of lambdoid suture. Dentition from left maxilla: the permanent canine is not erupted, the first and second molars, the third molar is not erupted; there is another third molar from the right maxilla.

Sex determination. In the absence of any typical feature the sex could not be assigned.

Age estimation. Based on the dentition the age at death is around 12 years (± 30 mos.) (Buikstra & Ubelaker 1994, fig. 24, p. 51). Otherwise, making a comparison with a skull of a young girl from the Rainer cranial collection (notation: A.I. 17, 13 years old, female, died at 21.09.1926) we observe same features with the left maxilla of skeleton 2. For example molars 1 and 2 are erupted, the third molar and the permanent canine are not erupted.

Measurements. No measurements were available.

Pathology. No pathological affections were observed on the fragments.

Taphonomy. These fragments were discovered with the Skeleton 1 and they have same taphonomy.

CONCLUSION

Basilica D were all the human bones were discovered was built in 4th century A.D. (Report of archaeological survey, year 1995), but it was in use until the 6th century A.D.; the bones belongs to two individuals: a female, 20 years old and a child, 12–13 years old. They have no peri- or postmortem modification.

These are not the only human bones discovered at Tropaeum Traiani in the 4–6 centuries layers (Soficaru 2005). As the human remains were discovered near a basilica, we can presume that they belong to persons buried there. In the absence of other bones, it is very difficult to understand the real situation.

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ANTHROPOLOGICAL RESEARCHES REGARDING THE ROMAN – BYZANTINE PROVINCE, SCYTHIA

A D SOFICARU

The anthropological studies regarding to the Roman – Byzantine province, Scythia, has an important value for the historical consideration about the funeral discoveries. Despite the large numbers of skeletons discovered during the archaeological excavations, anthropological analyses have not covered all these. Most of them are analyses of the osteological material, such as sex determination, age estimation, stature and some data about paleopathology. The important questions for this period are the artificial deformed skull in many necropolises, the bones of Christian martyrs and the link between historical sources and anthropological results, the human remains from upper levels of living, and different discussions about the previous analyses. These short considerations have the goal to show stage of anthropological studies about Scythia province.

INTRODUCTION

The purpose of this article is to make a short presentation of the anthropological analysis regarding the human remains from the Roman–Byzantine period and to discuss some of their problems.

From the chronological point of view, province of Scythia was established after 293 A.D. due to the administrative reforms of emperor Diocletianus and it is considered that the province had existed until 641 A.D. (Rădulescu 2001: 467 and 483). The geographical limits of the province are: the Danube on the West and North side, the Black Sea at East side, Moesia Secunda province in the South (Rădulescu 2001: 468 – 469, fig. 54).

DISCUSSION

The analysis of the funeral discoveries from Scythia during the Roman – Byzantine period is not complete without the discussion of the anthropological analysis. In the below table there are 2660 individuals from 2839 known graves and 166 skeletons with anthropological analysis.

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Their percentage is not important, but there are some problems which have to be explained:

- Anthropological analysis of the human remains from the necropolis of Carsium;
- The presence of an artificial deformed skull in the necropolises from Berroe, Callatis, Histria, Ibida, Tomis and martyrs crypt from *Tropaeum Traiani*;
- The existence of Alans at Histria;
- Human bones from the upper level from Halmyris, Ibida and *Tropaeum Traiani*;
- Christian martyrs from Halmyris, Noviodunum and *Tropaeum Traiani*.

The number of analyzed skeletons with the number of individuals
and discovered graves in each site

<i>Site</i>	<i>No. of graves</i>	<i>No. of individuals</i>	<i>No. of analyzed skeletons</i>	<i>Reference</i>
<i>Argamum</i>	24	?	0	–
<i>Berroe</i>	1139	1113	15	Mirițoiu 2006
<i>Callatis</i>	985	882	11	Mirițoiu 2006
<i>Capidava</i>	18	18	1	Nicolaescu – Ploșsor & Ceacalopol 1960
<i>Carsium</i>	95	?	0	–
<i>Dinogetia</i>	29	25	21	Popovici & Adam 1977
<i>Enisala</i>	4	4	0	–
<i>Halmyris</i>	5	5	2	Mirițoiu & Soficaru 2003
<i>Histria</i>	225	183	77	Nicolaescu – Ploșsor 1969, Mirițoiu 2006
<i>Ibida</i>	128	177	74	Mirițoiu & Soficaru 2003, Soficaru & alii 2004
<i>Noviodunum</i>	36	24	0	–
<i>Pietreni</i>	3	3	0	–
<i>Șipote</i>	2	2	0	–
<i>Tomis</i>	124	231	0	–
<i>Tropaeum Traiani</i>	41	15	7	Mirițoiu & Nicolaescu – Ploșsor 1978, Soficaru 2005, 2006
<i>Ulmetum</i>	2	2	0	–
Total	2839	2660	166	

Anthropological analysis of some skeletons from Carsium. During the winter of 1987 – 1988 in necropolis of Carsium saving archaeological excavations were made and the human remains were analyzed by Alexandra Bolomey. Unfortunately, the results have never been published and there is just a short note in an archaeological article. Among different information it specifies: “in some situations the skulls present deformations of maxillary bones, what suggests a link with the population from northern Africa (Nicolae 1993: 222). In the anthropological literature (Dembo & Imbelloni 1938) there is no any specification about such cases in the world. The only explanation is confusion from the archaeologist. We think that may be the author of anthropological analysis sustain the presence of some artificial deformed skulls (this hypothesis is not available because the bones are in our custody and we have not found such a case) or most probably, she observed skulls with maxillary pathology.

Artificial deformed skulls. The presence of a deformed skull among the funeral discoveries during this period indicates the existence of a population from the northern Black Sea or pure and simple the maintaining of nomadic customs. In a recent study, N. Mirițoiu demonstrated that artificial deformation of skull was a habit just of the nomadic population such as: Sarmatians, Huns, Ostrogoths, Gepids, and Protobulgarians. At least the skull (Mirițoiu 2006: 156), which belonged to the one of the five martyrs discovered in the Simple Basilica, was found in the graves of necropolises from Berroe (15 skulls, Mirițoiu 2006: 170–186), Callatis (11 skulls, Mirițoiu 2006: 216–231), Histria (6 skulls, Mirițoiu 2006: 192–20), Ibida (4 skulls plus other 2 discovered during the last year, Mirițoiu 2006: 257–260) and Tomis (6 skulls, Mirițoiu 2006: 166–167). The graves had not something different from the others and their integration in the local community could be suppose. From the ethnical point of view it is very difficult to say which population they belong, to but it is certain of nomadic origin (Mirițoiu 2006: 153).

Between the end of the IIIrd century and the beginning of the VIIth century A.D., Scythia province was affected by the attacks and invasions of Goths, Huns, Alans, Avars, and Protobulgarians, and we could presume an establishment and integration of them in the local communities.

“Alans” at Histria. The idea of a community of Alans buried in the area of *Extra – muros* Basilica from Histria was sustained first anthropologically (Nicolaiescu – Plopșor 1969: 17–24) and second archaeologically (Nubar 1971: 210–212). We will discuss below the anthropological method used but first we have to analyze the archaeological conclusion of this problem. It was sustained about the position of skeletons (flexed, semi-flexed with the legs across or with the upper limbs upright and flexed) could have analogies in the Sarmatic necropolises from the Romanian or ex – Soviet Union territory (Nubar 1971: 211). In the anthropological literature the discovered position of a skeleton is not the same with which had been deposited because the skeleton has some “movement” (Byers 2005: 107–110; Crubézy 2000: 16–31). Due to this reason we cannot sustain this idea,

with 11 skeletons which have a different position from the others 74. The across position of the legs at the tibia level could be explained by the transportation of the body to the grave or during the deposition. Regarding the burial artifacts, and the presence of shells and coral pearls (Nubar 1971: 211) could be explained by the access to a harbor and the opportunity to make commerce with other regions.

Regarding the method of anthropological analysis the *method of craniological analysis of the phenotypic structural groups* was used (Nicolaescu – Ploșșor 1969: 18), which is based more on the facial skeleton and which was available at that time. The analogies are made with two necropolises assigned to Alans from the ex – Soviet Union territory and dated in the XIth – XIIIth centuries A.D. (Nicolaescu – Ploșșor 1969: 21). We shall not discuss the methodology and we will present only another study that invalidates this hypothesis.

It is about a comparative statistical analysis based on 10 cranial measurements and by the Penrose distances, calculated were using 76 craniological series from Europe, North Africa and Central Asia, which covered a period of 500 years (1–500 A.D.) (Schwidetzky & Rösing 1975: 193). Based on this statistical method, a dendogramme with 61 significant series was obtained. Among the compared series it was the cranial sample from Histria – *basilica extra muros*; this, according to the results from the dendogramme, belongs to the southern cluster and it is nearby the samples from Greece, Pompei (Italy) and Ampurias (Spain) (Schwidetzky & Rösing 1975: 202). The southern group is well established and it has craniological series from Romania, Anatolia, Egypt, southern Italy and north-east of Spain (Schwidetzky & Rösing 1975: 206, fig. 3). Based on this method, much different from the other one used by the Romanian researcher, we could conclude about the people buried at Histria – *basilica extra muros*, they do belong to a population from northern Black Sea but they rather belong to a local population mostly to the Greek inhabitants of the city wall. The wish to establish the ethnic based on the anthropological analyses has conducted to mistakes, and much more the social relationships were ignored. For example, how a foreign population might have lived in Histria and how they could be buried in the same necropolis?

Human bones from the living upper level

Halmyris:

– Murighiol 1997, Therm I = cranial vault (40 %), left zygomatic, maxilla with 7 teeth; male, 35–40 years old;

– Murighiol 2002, T 3, Praesb. = 3 fragments (one from the occipital and other two from the right parietal bone) of the cranial vault (20%); male, over 50 years old.

Analogies in the same site were discovered in 2002 (Mirițoiu & Soficaru 2003: 540–543); all these bones could belong to other burials.

Ibida:

– Casa Mihailov = cranial vault (20%), inferior half of left femur; male, 45 years old; it is possible to be a destroyed grave;

– Baza 3 = human sacrum, possibly from a female.

Tropaeum Traiani:

– building D, a human skull from a 30–35 years old male (Soficaru 2005: 3–6);

– nearby basilica B, a human skull from a young female and other skull fragments from a teenager (Soficaru 2006).

Martyrs

Halmyris:

– 2 skeletons assigned to the martyrs Epictet and Astion; anthropological analysis confirmed the historical sources concerning the age, perimortem trauma and cause of death (Mirițoiu & Soficaru 2003: 543–545).

Noviodunum:

– 4 skeletons, males, there is not an anthropological analysis, but we know their names due to the Greek inscriptions on the crypt (Mirițoiu & Nicolaescu – Plopșor 1978: 203–204).

Tropaeum Traiani:

– 4 skeletons, adult males, names unknown (Mirițoiu & Nicolaescu – Plopșor 1978: 202–206).

CONCLUSIONS

The small number of the individuals with anthropological analysis in comparison with the large number of discovered burials does not diminish the importance of these studies. Since it is a period with social transformations, religious, ethnic and linguistic, the anthropological analyses could offer different answers about the province' population. Also, the funeral practices might be explained with the help of anthropological analyses.

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ANTHROPOLOGICAL ANALYSIS OF A BRONZE AGE SKELETON FROM SĂUCEȘTI (BACĂU COUNTY)

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The article refers to a female skeleton, estimated to be 40–60 years old at the moment of death, belonging to a Bronze Age grave – Monteoru culture, excavated in 1973, in the southern brink of the Morărița plateau, in the Săucești village, Bacău County. The skeleton presents an interesting case of two depressed cranial vault fractures, associated with a ‘parry’ fracture of the right forearm. The location, severity and mainly the predominance of this type of blows in other cases of female skeletons belonging to the Monteoru culture, lead to the idea of domestic violence rather than intertribal wars, as it has been asserted in the archaeological literature for a long time.

INTRODUCTION

The skeleton under analysis belongs to a Bronze Age grave, dated in the Monteoru culture, being found by chance – and afterwards investigated through a sounding excavation. The grave, belonging to a Bronze Age necropolis destroyed by the locals, was found in 1973, in the southern brink of the Morărița plateau, in the Săucești village, Bacău County (Figure 1e), during the investigation of a carpic cemetery (Căpitanu 1976: 151–182; Căpitanu, V. Ursachi 1979: 137, note 6). The skeleton laying crouched, with the head towards west, had as inventory a cup, a bronze needle, a *Lockenring* and two fragments from a miniature vessel¹, which were attributed by mistake to the phase/ceramics style Monteoru Ic2 (Căpitanu 1976: 151–153), being rather typical to the phase/ceramics style Monteoru Ic1–Ib.

STATE OF PRESERVATION AND REPRESENTATION

The skeleton is rather poorly preserved and displayed due to the fact that some of the bones were not recovered from the field. Also, the bones show deposits of calcareous crust from the wrapping soil and the lack of some parts because of

¹The last two pieces of the inventory were identified while cleaning the osteological materials in our laboratory

the natural destructive factors. The skull suffered some postmortem deformations (due to the wrapping soil pressure), such as a flaw of the brain box, located in the region of the right parietal tuber, which "irradiated" cracks in the median-posterior side of the brain box, thus rendering the restoration to its initial form difficult.

The left temporal bone shows a green pigmentation in the mastoid area and the external acoustic meatus, caused by the impregnation with copper oxides from the *Lockenring*.

The skull shows some missing parts: the right anterior side of the frontal bone, in an area located approximately between the glabella, the eminence and the coronal suture; also some fragments from the left side, between the frontal eminence and the left temporal line, near the coronal suture. The occipital lacks the base part, starting from the inferior nuchal line.

The facial skeleton is missing almost entirely, except for a fragment from the left side of the orbital region and of the zygomatic process. The mandible is represented only by a fragment of its anterior part, and separated both of the vertical rami, the right one without the condyle. Because of these lacks, the dentition is represented only by one incisor and two maxillary premolars from the right side, all of them isolated.

The shoulder girdle is represented by a fragment from the medial part of the right clavicle body, the left one missing the sternal end. The right scapula lacks the coracoid process, the medial and lateral margins of the bone, while the left one has only a fragment of the acromion, the spine and the lateral border.

Only some poorly preserved fragments of the ribs were recovered.

The vertebral column has been dug out in a very bad shape, therefore only one thoracic, two lumbar vertebrae and the last three segments of the sacrum can be recognized, together with numerous fragments of vertebral bodies and arches.

At the upper limbs, the humeri show a marked degradation of its epiphyses, being preserved separately the heads and a fragment of the left distal end. The cubiti and radii show also important erosions of the epiphyses, the right ones having only the proximal ends, with the cubitus lacking the olecranon. The hand skeleton is represented by the 1-4 metacarpals on the right side, and the first metacarpal on the left side, some of them with small degradations of the epiphyses.

Only the left os coxae have been recovered, missing the superior half of the ilium (having part of the posterior superior iliac spine and a portion of the ischial tuberosity), the pubis and the ischium (approximately from the ischial spine).

The lower limbs have both of the femurs with significant erosions of the epiphyses, being preserved only fragments of the heads and distal epiphyses of the left femur. The tibiae are represented by the body of the left one, and separately both of the distal epiphyses, together with the right fibula, without the proximal epiphysis. The foot skeleton is represented only by the left calcaneum, damaged on the medial side, the medial cuneiform bone, and the first proximal phalange on the same side.

SEX AND AGE ESTIMATION

Considering the pelvic characteristics, the sex of this skeleton is undoubtedly female. The great sciatic notch is large, the ilium is short and flared, the acetabular fossa has small dimensions, and the pre-auricular sulcus is present (Ferembach *et al.* 1979: 11, tab. I; Houghton 1974: 381–390). These observations are also sustained by the secondary sexual characters of the skull, which lacks the cranial crests, the skull bones are thin, the glabella and the occipital protuberance is degree 0 (Broca), the supraciliary arches are null, the supraorbital margin is sharp, the mastoid bones are small and gracile. The frontal and parietal tubers stand out, while the few teeth preserved are of small dimensions (Ferembach *et al.* 1979: 16, tab. II; Hoyme, Ișcan 1994: 74–75).

The age features are not well represented. *Pars temporalis* is totally obliterated, both exo- and endocranial, *pars obelica* and *pars lambdoidea* are obliterated endocranially (Hajniš, Novák 1976: 89–92), being framed in the 3rd–4th stages (Acsádi, Nemeskéri 1970: 115–121). A visible dental abrasion can be noticed, the preserved teeth having the occlusal surface covered by dentine, fifth degree by Brothwell (Brothwell 1981: 72, Figure 3.9; White 1991: 312, Figure 16.3). Also, a pronounced rarefaction of the spongy part of the preserved vertebral pieces, drives us to the conclusion – despite the lack of more representative indications – that we are dealing with an individual of an estimated age of death between 40 to 60 years old.

ANTHROPOLOGICAL CHARACTERISTICS

The poor state of preservation of the skeleton kept us from measuring most of the important anthropological dimensions, thus the anthropological considerations are limited mostly to visual estimations. The gracile skull has an ovoid shape in the vertical norm, and a house shape in the occipital norm (Figure 1a–b), the sagittal curve being regular (Table 1). The post cranial skeleton, also gracile, has weak muscular insertions, the femurs having a feebly developed linea aspera and a null pilastric index (Table 2). Preauricular groove shows that it had at least one birth.

ANATOMICAL AND PATHOLOGICAL CONSIDERATIONS

The first right maxillary premolar, with two major roots, shows a decay of big dimensions, at the distal basis of the crown. The second right maxillary premolar has a hypoplastic line of the dental enamel, which reveals a growth disruption in the childhood, and two small bilateral decays.

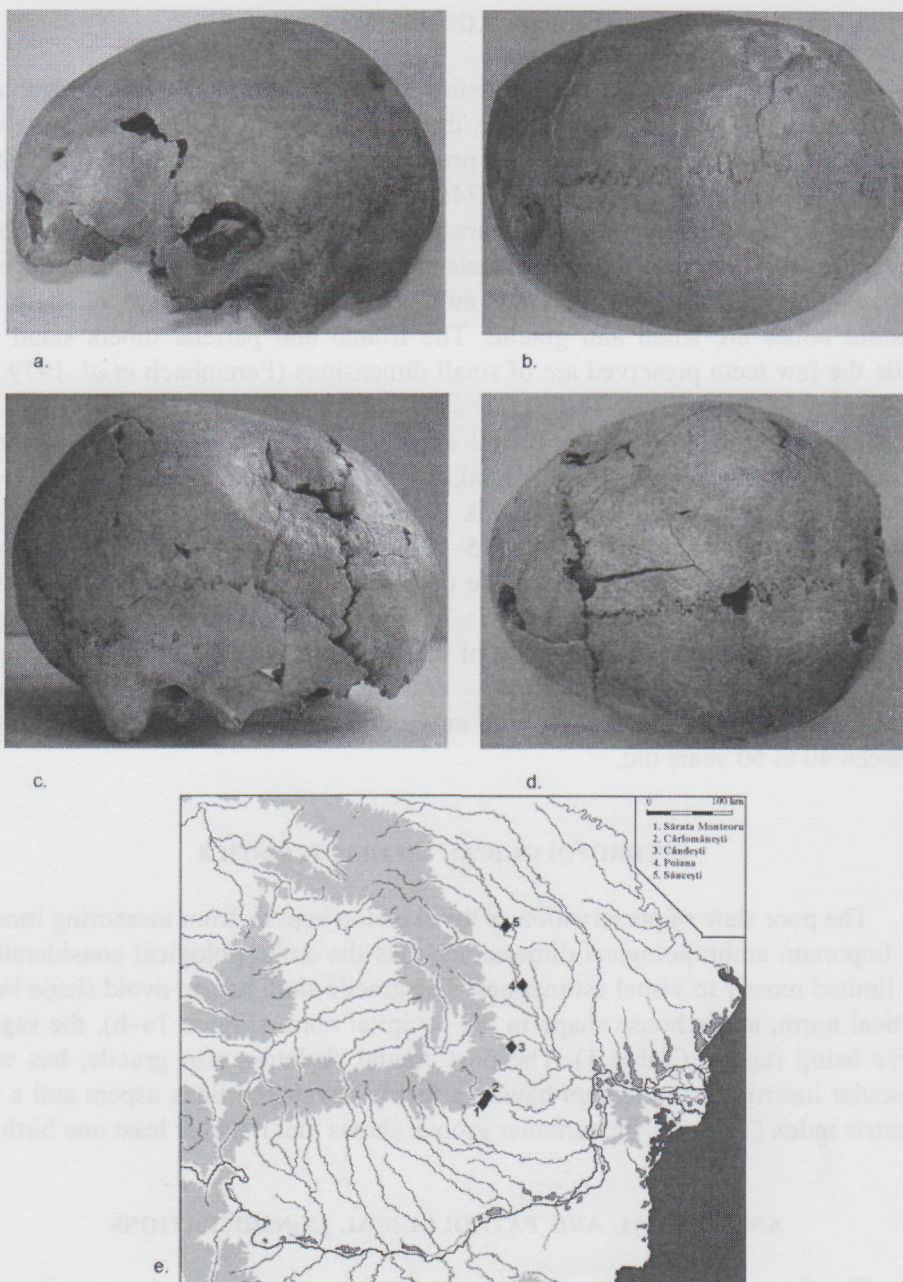


Fig. 1 a-b. Săucești: a. lateral norm; b. vertical norm; c-d. Cărlomănești: c. lateral norm; d. vertical norm; e. Monteoru culture sites mentioned in the text.

Table 1

Cranium-dimensions²

Martin No / Dimension	Value	Category
1 g-op	195	very long
2 g-l	192	very long
3 g-l	189	–
28 (1) l-l arc	83	–
29 n-b	114	medium
30 b-l	115	medium

Table 2

Postcranial skeleton-dimensions and indexes

Martin No./ Dimension and index		
Humerus	Right	Left
5 Max diam mid-shaft	21 1	20 6
6 Min diam mid-shaft	16 4	15 6
7a Min circum of the shaft	61	61
Section index (6 5)	77 72	75 72
Radius		
4 Transverse shaft diam	9 7	10 6
5 Sagittal shaft diameter	15 7	15 3
Section index (5 4)	161 85	144 33
Femur		
6 Ant -post diam of the mid-shaft	21 8	21 9
7 Medio-lateral diameter of the mid-shaft	22 8	24 0
8 Circum of the mid-shaft	71	72
Pilastric index (6 7)	95 61	91 25
Tibia		
8 Ant -post diam of the mid-shaft	–	17 5
9 Transverse diam of the mid-shaft	–	25 7
10 Circum of the shaft	–	68
Section index (9 8)	–	146 85

² Dimensions and indexes (in mm) Technique of measurements by Martin 1914 and Brauer 1988 Classification by Alexeev & Debetz 1964 114–122, tab 1–14

The most interesting aspect of the study of this skeleton is the presence of two healed fractures³, on the cranial vault, probably the result of a blunt force trauma. The first one, is located in the right frontal region, before the coronary suture, slightly to the left side of the bregma, is rather oval in shape, having approximately 32 × 25 mm (Figure 2 a,c). The second fracture, similar to the first one, but with the margins a little rounded, is located posteriorly to the left parietal tuber, at equal distances from the sagittal and lambdoid sutures, having approximately 31 × 22 mm being also visible on the inner side of the bone by a slight deformation of the internal table (Figure 2 b,d). A slight deformation of the cranial vault, located on the right parietal bone, near the lambdoid suture, where a postmortem deformation also exists, may also be interpreted as a trace of some less powerful hit, possibly a counter-blow to the first two traumas.

In both cases the margins of the bone are perfectly healed, the diploea cells being totally obliterated, although the blows were forceful enough to depress the bone into the dura. Nevertheless, although it has the typical shape of a depressed fracture, in the case of the frontal fracture there may have been a trepanation, carried out shortly after the traumas were produced, with the purpose of removing the bone splinters resulted from the impact. This was probably achieved by abrading the pericardium and diploea – as the tronconical shape of the trauma indicates, with a sharp object⁴. The removed surface has been covered with a thin bony layer, which grew during the healing process. The parietal fracture is instead a typical case of depressed fracture, caused by a hit with a blunt implement, which caused a pronounced squash of the external table and of the diploea.

It also shows a double fracture located in the distal third part of the ulna and of the right radius (Figure 2e). Both bones preserve a significant degree of lateral angulation, even a slight overlapping of the fractured ends, the trabecular system not being rebuilt. The fractured ends present a strongly mineralized callus, especially of the ulna. This type of fracture is known as ‘parry’ fracture, being the result of instinctively using the forearm to defend a possible hit to the head (Smith 1996: 84). This type of fracture usually involves a gross deformity of the forearm, pains, swelling, loss of the hand and forearm functions and, because the ulna border is subcutaneous, even superficial wounds can expose the bone (Koval, Zuckerman 2006: 217–225).

³ There is no evidence of infection, metabolic disease, postmortem damage or other pathological conditions which might indicate anything else than a fracture

⁴ See a similar case in the Monteoru cemetery from Poiana, County Galați, a female individual with an age of death of approximately 60 years old (Necrasov 1954: 123–124, Fig 5; Necrasov *et al* 1959: 16–25, pl. VII/1–2, Russu, Bologna 1961: 43–44)

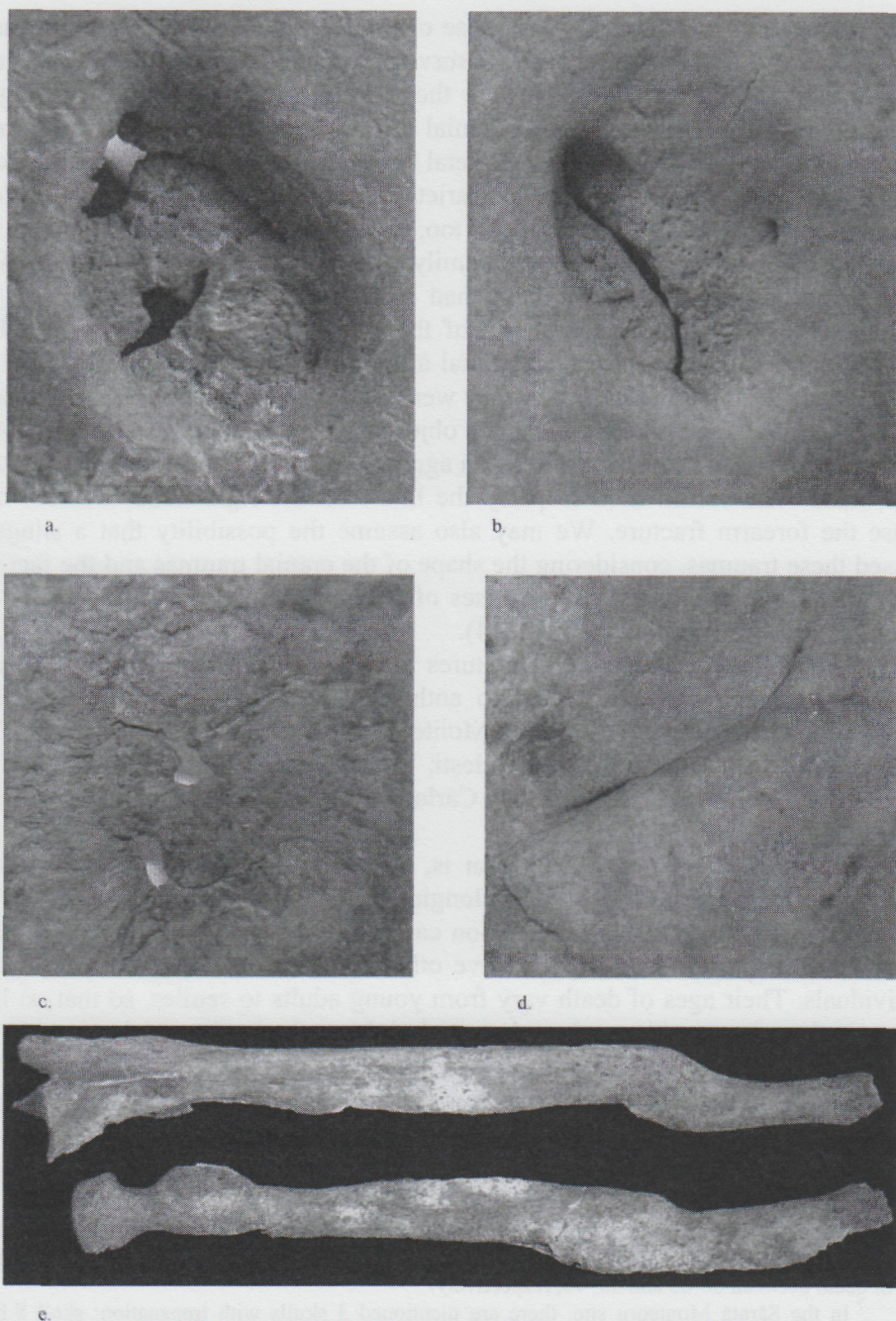


Fig. 2. Săucești: a-b. frontal and parietal fracture, exo-cranial view; c-d. Frontal and parietal fracture, endo-cranial view; e. right radius and ulna.

Both the cranial fractures and those of the forearm show very good signs of healing, being a hint that the individual survived for a long time after these traumas were produced. It is also possible that the traumas produced some neurological affection, because signs of two intracranial infections are preserved in the form of wounded porosity spots on the left parietal bone, the first located near the coronal suture, and the second one near the parietal tuber. The severity of the traumas, which probably affected the dura mater too, urges us to believe that the victim was helped in the recovery process by the family or the community, because for quite a long period of time she must have had problems moving her right arm and probably the whole body. The cause of these fractures is difficult to establish, without the doubtlessness that the cranial and arm fractures were produced at the same time. Presuming, though, that they were produced simultaneously, their cause could be related to a strike with a heavy object (a mace, a stone ax or another blunt implement), from a short distance, by an aggressor which struck forwardly with the right hand. The victim tried to parry the hits with the right hand, which would cause the forearm fracture. We may also assume the possibility that a slingshot caused these traumas, considering the shape of the cranial traumas and the fact that such cranial blow, including some cases of trepanation, were presumed to be the result of such hits (Necrasov 1954: 124).

Cases of depressed cranial fractures are also known from other Monteoru cemeteries, which were submitted to anthropological analyses. We are talking about the IVth cemetery from Sărata Monteoru, Buzău County (Maximilian 1962: 139, Fig. 45)⁵, the cemetery from Căndești, Vrancea County (Miu 1999: 139)⁶, and a recently published case from Cărlomănești-*La Arman*, Buzău County (Constantinescu *et al.*, 2005: 51).

The most interesting observation is, however, the fact that all the known cases of healed depressed fractures, belonging to the Monteoru culture – we are not taking into consideration the trepanation cases from Sărata Monteoru⁷ and Poiana (see above footnote 3), which can have other causes than fractures – are female individuals. Their ages of death vary from young adults to seniles, so that, at least for now, there is no evidence for substantial violence directed towards a certain age group. The fractures are found mainly on both sides of the skull (four on the right parietal and one on the left), and rarely in the front and rear (one on the frontal and

⁵ Three cranial fractures are cited, only one of them illustrated, without a reference to the skeletons they belong to

⁶ Similar traumas were identified – although not illustrated and vaguely described, at the skeletons from graves 311 and 471, both of them belonging to female individuals, with an estimated age of death between 60-65 and 30-40, respectively

⁷ In the Sărata Monteoru site, there are mentioned 3 skulls with trepanation: skull S.E. M 133/1952 (female), a fragment from a cranial vault from the settlement (anthropological unanalyzed), and a skull from one of the cemeteries (male). See: Maximilian 1962: 31, 131, Fig. 39, Necrasov, Floru, Nicolăescu-Plopșor 1959: 14-16, pl. V/1-2, VI; Nicolăescu-Plopșor, Wolski 1974: 6, Fig. 5-6, Russu, Bologna 1961: 44-45, Fig. 3

another one on the occipital) and because the facial bones are usually not preserved, observations were not available⁸. The explanation can be related to the fact that the parietals constitute a larger area of the vault than the frontal or occipital, having half of the resistance of the frontal to hits (Wilkinson 1997: 31–32). The dimensions of the lesions vary⁹ – at least for the two skulls we have studied (from Săucești and Cârломănești). Those belonging to the skull from Gr.11/2003 – a feminine skeleton, with an age of death between 20–25 years old – from Cârломănești-*La Arman* cemetery (Figure 1c-d), have an ovoid shape, but are much bigger (that on the right parietal has 51×42 mm, and that on the occipital has 54×48 mm). Unfortunately, because of the lack of detailed observations, we can establish neither a pattern of the type of blows that may have produced these fractures, nor a possible relation between their dimensions and the location on the cranial vault (Wilkinson 1997: 32).

Another interesting fact is that almost all of them were caused by frontal attacks, only one fracture being located on the occipital bone, which might point us to the idea that the victim knew the aggressor and was facing him/her during the attack. This might also be confirmed by the presence of the 'parry' fracture, which also suggests that the victim was facing the aggressor, trying to defend oneself against the blows. This observation, together with those regarding the location, severity and the predominance of female victims show that we are not dealing with accidental injuries, but rather a certain type of directed violence, most probably domestic violence¹⁰, although there are ethnographic cases when women are injured by other women and not only by men (Burbank 1990: 266). However, the explanations regarding the prehistoric social context in which such injuries appear are very different (Wilkinson 1997: 34–39; Martin 1997: 65–69) and hard to explain in the current state of research on the Monteoru culture. For a better understanding of the reasons why this kind of aggressions appear – we believe that special attention should be directed to what was called as the “strategic and symbolic reasons” for which husbands try to stigmatize their wives as a symbol of their physical dominance (Walker 1997: 160).

These facts shed a new light on the discussions about wars between different Bronze Age communities, and mainly about the “warrior’s class” in the Monteoru society, as it was presented in the archaeological literature (Zaharia 1976: 411; Zaharia 1995: 192), for a long time. However, we will follow the multiple archaeological aspects regarding Bronze Age war and warriors, and the social implications which can be related to our observations, in a future study.

⁸ Analogies regarding the location of the blows show that depressed fractures – and mainly those located on the parietal and occipital bone are typical for female directed violence (Wilkinson 1997: 28–31, Table 2 2, Fig 2 3, Martin 1997: 55–58)

⁹ For those from Sărata Monteoru and Cârdești, we do not have data about the size of the injuries

¹⁰ There are numerous cases in which the arm fractures were considered to be typical for domestic violence cause traumas (Smith 1996: 86).

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DYNAMIQUE DES COMPORTEMENTS ET ÉTAT NUTRITIONNEL DES ADOLESCENTS ROUMAINS: DÉVELOPPEMENT D'UN PROGRAMME DE COOPÉRATION SCIENTIFIQUE FRANCO-ROUMAINE

F ROVILLÉ-SAUSSE *, CRISTIANA GLAVCE**

L'Institut de Recherches Anthropologiques „Francisc Rainer” de Bucarest, en collaboration avec l'Unité Mixte de Recherche 5145 d'Eco-Anthropologie de Paris (coopération franco-roumaine CNRS/Académie Roumaine), effectué depuis 2004 une étude pour évaluer les transformations morphologiques observées sur les populations d'enfants et d'adolescents de Bucarest, dans les nouvelles conditions de vie imposées par le développement socio-économique du pays [7]. On a constaté une tendance à l'installation de la pré-obésité et de l'obésité surtout chez les enfants (28% de la classe d'âge 6–7 ans), mais aussi présente chez les adolescents de 14–15 ans, tandis que le taux d'insuffisances pondérales augmente avec l'âge (en particulier chez les jeunes lycéennes). Or, il faut savoir qu'une alimentation insuffisante en quantité ou en qualité peut retarder le développement sexuel et ralentir la croissance et la maturation osseuse, et compromettre la santé des futurs adultes.

L'étude sur l'alimentation des adolescents est envisagée sous ses aspects à la fois anthropobiologiques, socioculturels et psychologiques, donnant une perspective interdisciplinaire à ces aspects.

Situation du sujet dans le contexte national et international:

La Roumanie, qui vient d'entrer dans l'Union Européenne le 1^{er} janvier 2007, se trouve actuellement dans une situation de transition. Ses frontières s'ouvrent, et elle accède rapidement aux grands courants de commerce internationaux et de développement du modèle occidental. Divers processus récents d'urbanisation, de déurbanisation, et de modernisation sont à l'origine des changements rapides qui s'observent en Roumanie. Les différences s'estompent entre villes et villages. La population urbaine, qui représente maintenant 54,6% de la population totale (population urbaine française: 76,3%) s'est adaptée aux nouvelles conditions de marché et il en résulte une élévation du niveau de vie [1]. De grandes firmes de produits alimentaires ouvrent des magasins et, sous la pression des médias, les conduites alimentaires évoluent très rapidement dans le sens d'une "occidentalisation" généralisée. Or, les nombreuses études menées dans différentes

parties du monde [2] ont montré que les besoins nutritionnels des individus semblaient universels (compte tenu, bien entendu, de l'âge, du sexe et de certaines situations particulières telles que grossesse, lactation, maladies, pénibilité du travail, etc.) Par contre, il a été démontré que l'abandon d'une alimentation traditionnelle, souvent relativement équilibrée et proche des recommandations nutritionnelles des spécialistes, et l'adoption d'une alimentation occidentalisée, s'accompagnaient souvent d'une détérioration de certains indicateurs de santé

Aujourd'hui, l'alimentation comme les conditions de santé et de développement des enfants et des adolescents n'ont jamais été aussi bonnes en Europe. Cependant, il existe encore des disparités frappantes entre les pays européens, comme au sein de ceux-ci. Ces inégalités ne cessent de s'aggraver, comme le démontre le nombre d'adolescents pour qui l'accès à des services sanitaires de qualité, à l'information, à l'éducation et à une nutrition adéquate continue à poser problème.

Dans l'Europe d'aujourd'hui, six des sept principaux facteurs de risque de mort prématurée (pression sanguine, cholestérol, indice de masse corporelle, consommation insuffisante de fruits et légumes, manque d'activité physique, consommation excessive d'alcool) concernent la façon dont nous mangeons, buvons et nous dépensons [3]. La pandémie actuelle de l'obésité, qui est apparue et s'est développée rapidement durant les dernières décennies, résulte des changements sociaux, économiques, culturels et environnementaux. La surcharge pondérale est le problème de santé le plus fréquent chez les enfants et les adolescents européens. Cette pandémie d'obésité n'est plus un syndrome des sociétés nanties. Elle se généralise dans les pays en développement et dans les pays en transition, particulièrement dans le contexte de la mondialisation [4]. Cela signifie que les mauvaises habitudes alimentaires et le manque d'éducation physique s'aggravent, avec pour horizon une augmentation des risques de développer des troubles liés à la malnutrition par excès (maladies cardio-vasculaires, hypertension, diabète de type 2, troubles musculo-squelettiques, etc.). Le surpoids et l'obésité des adolescents constituent un problème majeur en France. Des études épidémiologiques montrent une évolution rapide de la prévalence du surpoids et de l'obésité des adolescents en France. Pour la classe d'âge des 14-15 ans scolarisés en classe de 3^{ème}, la prévalence globale du surpoids (obésité incluse) est de 15%, avec une prévalence de l'obésité de 3,3% [5]. En ce qui concerne les jeunes roumains, aucune étude jusqu'ici n'a été effectuée au niveau national concernant l'obésité.

S'il est couramment admis que des comportements alimentaires inadéquats peuvent exercer une influence néfaste sur la santé, rares sont les scientifiques qui se sont intéressés à l'origine de ces comportements [8]. Les habitudes prises dans l'enfance persistent-elles chez l'adolescent et le jeune adulte? Une éducation

nutritionnelle précoce a-t-elle un sens? Les motivations liées à l'activité physique, à la consommation de boissons alcoolisées, de tabac et de toute addiction doivent être prises en compte.

Les jeunes de moins de 15 ans représentent 15,7% de la population roumaine aujourd'hui (ils sont 18% en France). Les anthropobiologistes, en étroite collaboration avec les professionnels de l'éducation et de la santé publique, ont une grande responsabilité dans le maintien de la qualité de vie des futurs adultes [9].

Le programme de coopération scientifique franco-roumain mis en place en 2004 se poursuit, avec pour objectif d'identifier l'état nutritionnel (altérations et troubles du comportement alimentaire, surpoids, addictions), les performances physiques (dégradation des capacités physiques liées à la santé telles que la résistance musculaire et cardiorespiratoire, la flexibilité), les dépenses énergétiques des adolescents roumains qui, après nos interventions répétées au cours des trois années écoulées (cours et ateliers ont accompagné nos investigations; les élèves étaient motivés), avaient acquis des notions de santé liée à la nutrition et à l'activité physique. Il sera intéressant d'observer si des modifications durables (améliorations, rééquilibrage nutritionnel) de comportements alimentaires et d'activités physiques (diminution significative de la sédentarité) sont survenus chez ces adolescents mieux informés que les autres. Leurs pratiques quotidiennes actuelles sont-elles en adéquation avec leurs connaissances des notions d'équilibre alimentaire, de besoins et d'apports nutritionnels, de dépenses énergétiques? Cela nous permettrait de confirmer si l'adolescence est vraiment une période propice à une éducation nutritionnelle. Il nous sera possible de publier prochainement un bilan de santé des adolescents roumains.

Une coopération nécessaire pour atteindre les objectifs du programme:

L'alimentation des adolescents envisagée sous ses aspects à la fois anthropobiologiques, socioculturels et psychologiques est un domaine pratiquement jamais exploré aujourd'hui. La plupart des études anthropobiologiques traitant de la nutrition/malnutrition présentent des statistiques sur le développement physique des individus, utilisant les valeurs standards pour déterminer l'état nutritionnel et envisager d'éventuels régimes et prises en charge. D'autres études, à caractère social, tiennent compte des comportements, des habitudes culturelles, des motivations psychologiques des individus ou des populations, de l'évolution et de la mondialisation des conduites et des choix alimentaires. Dans ces travaux, il n'existe pas de statistiques de corrélations biologique/culturel. C'est ce que nos deux équipes ont entrepris dès 2004. L'originalité de notre démarche tient à la complémentarité de nos équipes, comme en témoignent les spécialités de chacun. L'équipe roumaine est composée de scientifiques plus spécifiquement orientés vers les sciences biologiques et médicales (adaptations biologiques et micro-évolutions

dans les sociétés en transition, effets de la transition nutritionnelle sur la santé, valorisations des schémas alimentaires, évaluation des besoins et des risques de malnutrition chez les adolescents). L'équipe française est composée d'éco-anthropologues, ethnologues (réponses adaptatives aux changements environnementaux, culturels et sociaux chez les enfants et les adolescents, les problématiques sanitaires, sociales et culturelles des populations d'adolescents en difficulté, réponses aux perceptions gustatives, choix alimentaires des adolescents et des adultes, socialisation de l'enfant et de l'adolescent). Les efforts conjugués des deux équipes scientifiques s'appliquent à répondre aux multiples questions qui surgissent aujourd'hui face à la mondialisation du commerce, l'augmentation des disponibilités alimentaires et l'accessibilité inégale aux produits

METHODOLOGIE

Les enquêtes anthropologiques, sociologiques et psychologiques sont menées de pair, auprès des adolescents que nous connaissons déjà afin d'apprécier l'impact sur leur comportement actuel de l'information qu'ils ont reçue en matière de santé liée à l'alimentation : évolution, amélioration. Chaque individu volontaire (N=1100) bénéficiera d'une consultation anthropométrique qui permettra la détermination de sa composition corporelle (indice de corpulence, bioimpédance), de son état physiologique (capacité vitale, tension artérielle, cholestérolémie, glycémie), et de son état nutritionnel. Chaque adolescent fera un test Kidmed afin d'évaluer le comportement alimentaire hebdomadaire. À partir d'un questionnaire de 16 items dont les valeurs s'additionnent, on peut faire un classement de la diète en trois groupes : très mauvaise qualité, besoin d'amélioration, diète optimale. Enfin, une enquête alimentaire de type "interrogatoire de rappel des dernières 24 heures" sera réalisée, pour évaluer les apports nutritionnels journaliers individuels et moyens, et les comparer aux apports conseillés pour cette classe d'âge. Cette méthode permet de définir les habitudes alimentaires d'une population. Lors d'un entretien direct individuel de 30 à 40 minutes, à l'école, l'enquêteur demande à chacun de décrire la prise alimentaire des 24 heures précédentes. Il aborde aussi des questions sur les goûts et les préférences gustatives, les régimes, les modes, la perception de l'image du corps, les addictions. Les apports nutritionnels individuels seront évalués à l'aide du logiciel des tables de composition des aliments et comparés aux références pour les classes d'âges respectives et en fonction du sexe. Des tests de condition physique seront faits, sur le modèle des tests de la batterie Eurofit (coordination vitesse/puissance, équilibre, souplesse, force/endurance statique et dynamique, endurance cardio-vasculaire).

Au terme de sept années de coopération, l'ensemble des résultats obtenus sera présenté lors d'un colloque international que nous souhaitons organiser à Bucarest à

la fin de l'année 2010, sur le thème «Nutrition-Santé des adolescents de l'Union Européenne», sous l'égide du CNRS et de l'Académie Roumaine

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BODY MASS IN TRANSYLVANIAN URBAN POPULATION

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The present study approaches the variability of some body mass dimensions and indices in Transylvanian urban population, regarding their nutritional health status. We monitor the evolution by age, sex and residence area of the main body dimensions and BMI (body mass index), a sensitive indicator of nutritional health status. We recorded differences regarding evolution by age and sexual dimorphism, both for dimensions and the body mass indices we analyzed. By the method of Z-score values, we highlight the ages from where the somatic changes begin, which can signalize the pathological potential tendencies regarding the nutritional health status.

The research of body constitution, specifically the analysis of body dimensions and indices, opens a new path for passing from fundamental research in anthropology to the applied one, displaying a wide palette of anthropological valences in the field of medical research and the designing one within industry.

An “anthropological monitoring of population” could be achieved by medical anthropological researches, correlative to “the medical surveillance”, contributing so to the emergence of several preventive politics for nutritional health of population.

The concept of “anthropological monitoring” of population makes reference to the researches that highlight anthropometrical dimensions and body mass indices variability and reflect nutritional health status, normality and/or pathological potential tendencies situated at the two ends of their variability.

The “anthropological monitoring of the population” regarding the nutritional health status must be conducted for the entire period of children and teenagers’ growth and development, at the first signs of the “somatic vulnerability”, otherwise incurring a high risk of gliding on pathological slide (which can be only partly remediable).

MATERIAL AND METHOD

The present study considers a series of body mass dimensions (height, sitting height, length of inferior limb, weight, thorax and abdominal perimeters) and the Body mass index that was upheld by W.H.O. and applied by us in the recent years.

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The body mass index lies at the bottom of anthropological monitoring action of population, allowing a precocious diagnosis of nutritional disorders that leads to underweight or overweight.

In this paper, we approached with priority the issue of overweight because it leads to obesity, whose severity lies in its twofold hypostasis of chronic disease and risk factor for the degenerative pathology – like cardiovascular, respiratory, metabolic diseases – situated on top of morbidity and mortality statistical rates of the world's populations.

Our survey was conducted upon Transylvanian urban population, represented by a number of 1216 male subjects and a number of 2049 female subjects from the following cities: Deva (167 males and 236 females), Braşov (334 males and 974 females), Cluj (130 males and 452 females), Arad (145 males and 267 females), Hunedoara (340 males), Sibiu (120 females).

1. Anthropometrical body dimensions

Height

The average value of height *in the male population* is 1714.22 mm, which harmonizes to the high statures category from Martin scale of classification, a prevalent/predominant class for the entire population, too (58.89%) (Tables 1 & 4).

A decrease of the high statures and an increase of the short ones were recorded in evolution of height by age (Table 3).

We recorded the following average value of height in the inspected urban area: an average value of 1724.94 mm in Deva city, an average value of 1705.70 mm in Braşov city, an average value of 1719.89 mm in Cluj city, an average value of 1727.67 mm in Arad city, an average value of 1712.37 mm in Hunedoara city (Tables 6-11).

The female population presents an average value of height of 1607.12 mm, which correspond to the high statures category (Table 1 & 5).

As regards the variability by age of female population, we recorded – as in male population – a decrease of frequency of high statures and an increase of short ones. Comparing the average values of height we found an accentuated sexual dimorphism (Table 2).

The geographical variability of the average values of height in female population records the following values: a mean value of 1608.43 mm in Deva city, a mean value of 1617.01 mm in Sibiu city, a mean value of 1616.43 mm in Cluj city, a mean value of 1598.13 mm in Arad city and a mean value of 1596.99 mm in Braşov city (Tables 6–11).

Sitting height (component that was derived from height)

The male population presents an average value of 891.29 mm (Table 1), which correspond to the superior limits of super-average category from Martin scale of classification, a dominant category for the entire population (46.18%) (Table 1).

The decrease of mean value of sitting height begins with the age of 40 and is accelerated towards/grows up to the last age group.

In Transylvania urban centres, the average values of sitting height vary between 903.96 mm for the population of Arad city and 868.69 mm for the population of Hunedoara city (Tables 9 and 10); it runs up to 899.89 mm for the population of Braşov city, 892.98 mm for the population of Deva city and 886.78 mm for the population of Cluj city.

The female series displays an average value of sitting height of 854.38 mm (Table 1), which is situated at the superior limits of the super-average category from Martin scale of classification, a dominant category for the entire population (47.44%).

Evolution by age of sitting height does not offer us clues regarding the decreasing of bony mass at the vertebral column level up to the age of 50.

We recorded a slight differentiation of the average values of this dimension by geographical area (the registered values were: 848.57 in Deva city, 851.43 in Braşov city, 849.57 mm in Cluj city, 853.29 mm in Arad city and 856.03 in Sibiu city).

Length of inferior limbs

The male series presents an average value of 823.09 mm. A minus of 17.74 mm was noted in evolution by age of this dimension between the age of 25 and the age of 55, a difference that could be attributed to bony mass changes at the foot vault level (Table 1 & 3).

The female series presents an average value of 752.64 mm, considerably lesser than the average values of the same dimension in male population (Table 1).

Between the age of 25 and 55, we recorded a difference of 29.44 mm (considerably bigger than the one in male population), which sustains the claim that women suffer more pronounced changes of bony mass in comparison with men (Table 2).

The average values of this dimension in male and female population from the explored urban centers are presented in Tables 6–11.

Weight

The male series presents an average value of weight of 71.64 kg, displaying in its evolution by age variations that run from 66.50 kg at the age of 20 up to 75.29 kg at the age of 50 (Table 1).

The female series presents an average value of weight of 61.24 kg, significantly lesser than the one in the male population (Table 1). The limits of weight in its evolution by age are 56.52 kg at the age of 20 and 68.63 kg after the age of 58, displaying a different increase by age (12 kg) in comparison with men (only 9 kg) (Table 2, 3).

This weight-related “burden” could explain why the female population is more affected during the ontogenetic evolution at the bony segment level in comparison with the male population.

As a matter of fact, this would influence the body mass indicators in whose equation weight enters.

We draw attention to the geographical variability of weight in the examined urban centers (Tables 6–11).

Thorax perimeter

The male series presents an average value of 963.37 mm, a value that records within its variability limits 922.40 mm at the age of 20 and 1000.63 mm after the age of 50) (Tables 1 and 3).

The female series presents an average value of 893.44 mm, significantly lesser than the mean value in male population. The variability range of thorax circumference lies between a minimum of 845.81 mm at the age of 20 and a value of 966.34 after the age of 55 (Table 1 and 2).

The variability of the thorax perimeter by urban centers, both for the female and males, is displayed in tables 6–11.

We noted that the limits of variability range of thorax perimeter are larger for females (121.00 mm) in comparison with men (Tables 1–3).

The waist perimeter

The male series presents an average value of 881.81 mm (Table 1). The limits of variability range are situated between a minimum of 805.08 mm at the age of 20 and 956.56 mm after the age of 55.

The waist perimeter begins to increase significantly after the age of 35 (Table 3).

The female series presents an average value of 768.37 mm, with the limits of variability range between 715.10 mm at the age of 20 and 875.09 mm after the age of 55 (Tables 1 and 2).

If regarding average value we noted a significant sexual dimorphism, as concerns the evolution by age, the waist perimeter falls approximately into the same limit of variability and we recorded an increase of almost 151.48 mm in males and 160.00 mm in females (Tables 2 and 3).

2. Analysis of Z-score values

The Z-score values represent the sigmatic deviation of some dimensions by age and sex given the average values of these dimensions in the entire population.

Graphically represented, these Z-score values could highlight both the evolution of some dimensions by age groups and the sexual dimorphism of some body dimensions in a population.

Analyzing Figs. 1 and 2, we notice that independently of the gender of studied population, the ages of 35–39 represent a limit from where the sigmatic deviations changes their sense regarding evolution of the body dimensions.

If until this age some body dimensions are situated in the positive pole, meaning that they are placed in the upper register of their variability, others are situated in the lower register comparing to the average values in populations.

As concerns *the female series* (Figure 1), height, length of the inferior limb and, to a less degree, sitting height are situated in the upper register of the sigmatic deviations from the average value of body dimensions. Until the age of 35–39, these sigmatic deviations are placed within the limit of 0.20 % of the average value of female population; the tables presenting this population's variability by age also sustain this fact.

The male population (Figure 2) maintains the same evolution trend until the age of 35–39.

Using comparison analysis upon the male and female series, we concluded that the noticed phenomenon is more unobtrusive in the female series (Radu Elena *et al.*, 2005)

Nonetheless, for these dimensions, the age of 35–39 remains a limit, since after this age the sense of sigmatic deviation changes from positive to negative, meaning that for these body dimensions the sigmatic deviations are placed in the inferior register in comparison with the average value of the population.

Starting with the age of 40, both females and males “stray” negatively from the average value of these body dimensions in general population; this deviation is stronger after the age of 55 in the female population comparing to the male population.

Analyzing figures 1 and 2, we observe that the deviations in negative sense of the body dimensions after the age of 40 are more accentuated for the entire male and female population in comparison with the deviations in positive sense occurred until the age of 39, especially for the female series.

We also take note of the fact that the increasing average value of height is due in a higher measure to the decrease of length of the inferior limbs, through the collapse of the foot vault, than to the subside of vertebral column, noticeable at the sitting height level.

Weight and thorax and waist perimeters given another sense of the evolution of “Z” standardized variables; between the age of 20 and 39, these dimensions join the negative register of “Z” standardized values (an inverse situation in comparison with height, sitting height and inferior limbs) with significantly higher negative sigmatic deviations reaching 0.80%.

As concerns weight, the sense of sigmatic deviation turns from negative to positive at different ages, to be exact at the age of 30–34 in males and at the age of 35–39 for women.

At the same time, we noticed that the female series records an increase of weight significantly higher comparing with the male series after the age of 50, with a sigmatic deviation of + 0.80% in comparison with + 0.40% in male series.

Thorax and waist perimeters start from negative sigmatic deviations, significantly higher in male population comparing with the female one, but the sense of these deviations changes in the positive register at the age of 30–34 for men and at the age of 40–44 for women.

After the age of 50 we recorded the highest negative deviations regarding thorax and waist perimeters both for men and women.

The analysis of the two figures leads us to the conclusion that an increase of weight in the positive register of stigmatic deviations implies a considerable increase of stigmatic deviations of thorax and waist perimeters.

Body mass indices in Transylvania urban population

The body mass indices are body conformation indicators in whose equation are involved two or more anthropometrical dimensions, essential for the somatic structure of a population or of an individual. Considering the drawn anthropometrical dimensions, we regard 2 indicators as defining for the somatic constitution: the Rohrer index and the Quetelet index, which operate with the same dimensions in different equations, namely: $\text{weight} \cdot 100 / \text{height}^3$ (the formula of Rohrer index) and $\text{weight} \cdot 100 / \text{height}^2$ (the formula of Quetelet index).

The Rohrer index

The analysis of Rohrer robustness/sturdiness index highlights an accentuated sexual dimorphism: the Transylvania male population is preponderantly hypotrophic (47.13%), while the female population is prevalently eutrophic (33.92%), with tendencies towards supereutrophy (Tables 4 and 5).

This sexual dimorphism is reflected in the evolution of Rohrer index by age: while for the male population the supereutrophy and hypertrophy categories do not outrun about 9% of population (even after the age of 50), for the female population we recorded only for the hypertrophy category a frequency of over 58.99% after the age of 50 (Tables 4 and 5).

The Quetelet index (BMI – body mass index)

The BMI is considered by W.H.O. the best body mass indicator in population studies, indicator of nutritional health status in children and teenagers, indicator of potentially pathological body tendencies towards overweight, obesity and diseases in which obesity is predominant as a risk factor (such as cardiovascular, nutritional, endocrine diseases and so on).

Using anthropometrics as population research method and body mass variability by Quetelet scale of classification, the medical anthropology offered “an anthropological method of monitoring the populations’ health status” that was complementary to “population medical surveillance”. For a certain pathology that especially belongs to nutrition, anthropology could offer a precocious diagnosis of metabolic disorders, in a phase when these reflect only the predisposition or vulnerability to these, before they consolidate themselves as disease.

Thus, we could talk about the predisposition to overweight and obesity, the implicit predisposition to cardiovascular diseases or the predisposition to diabetes since the childhood or early adolescence period.

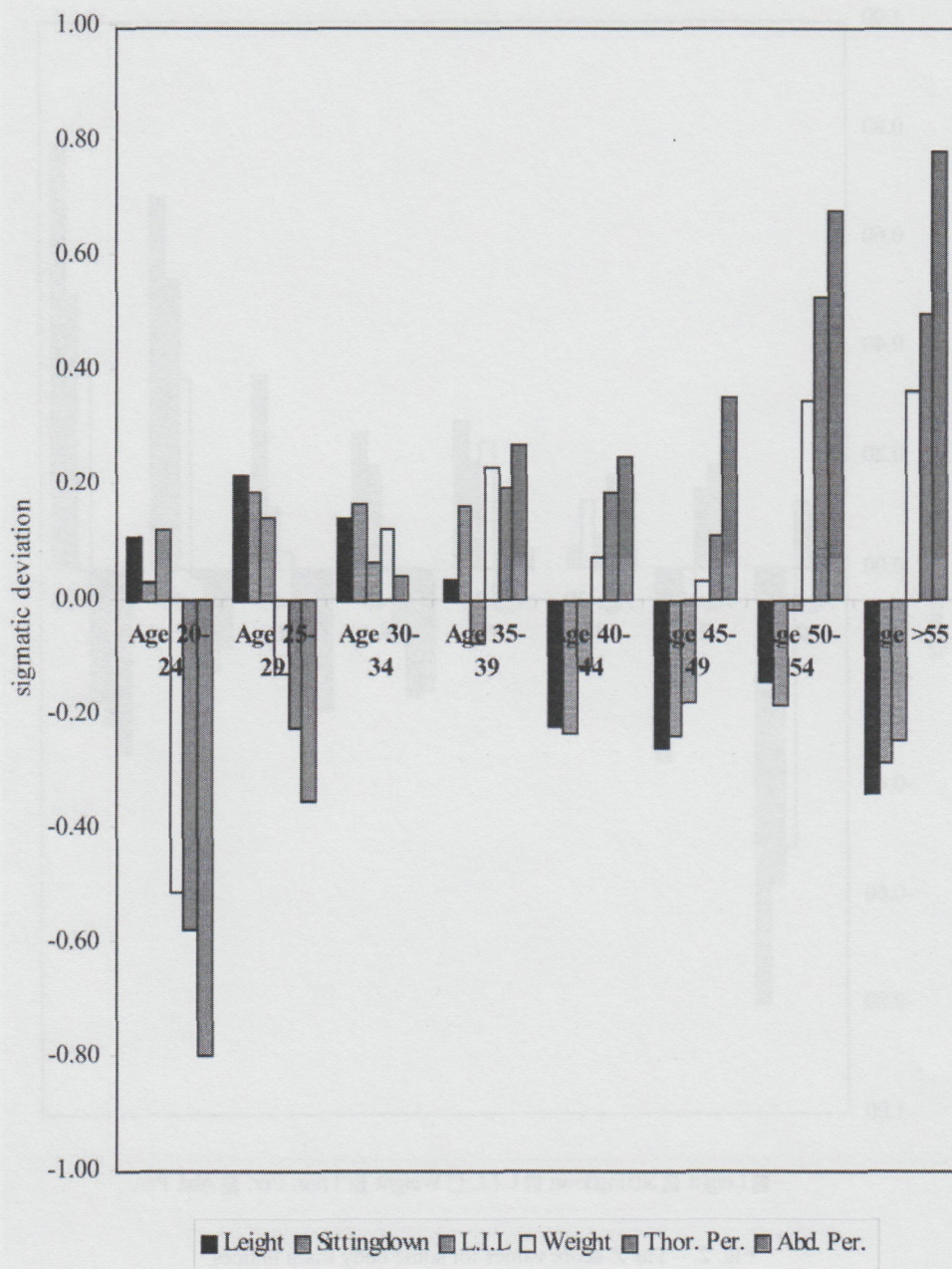


Fig. 1. – The Z-score values for some body mass indices in Transylvania urban female population.

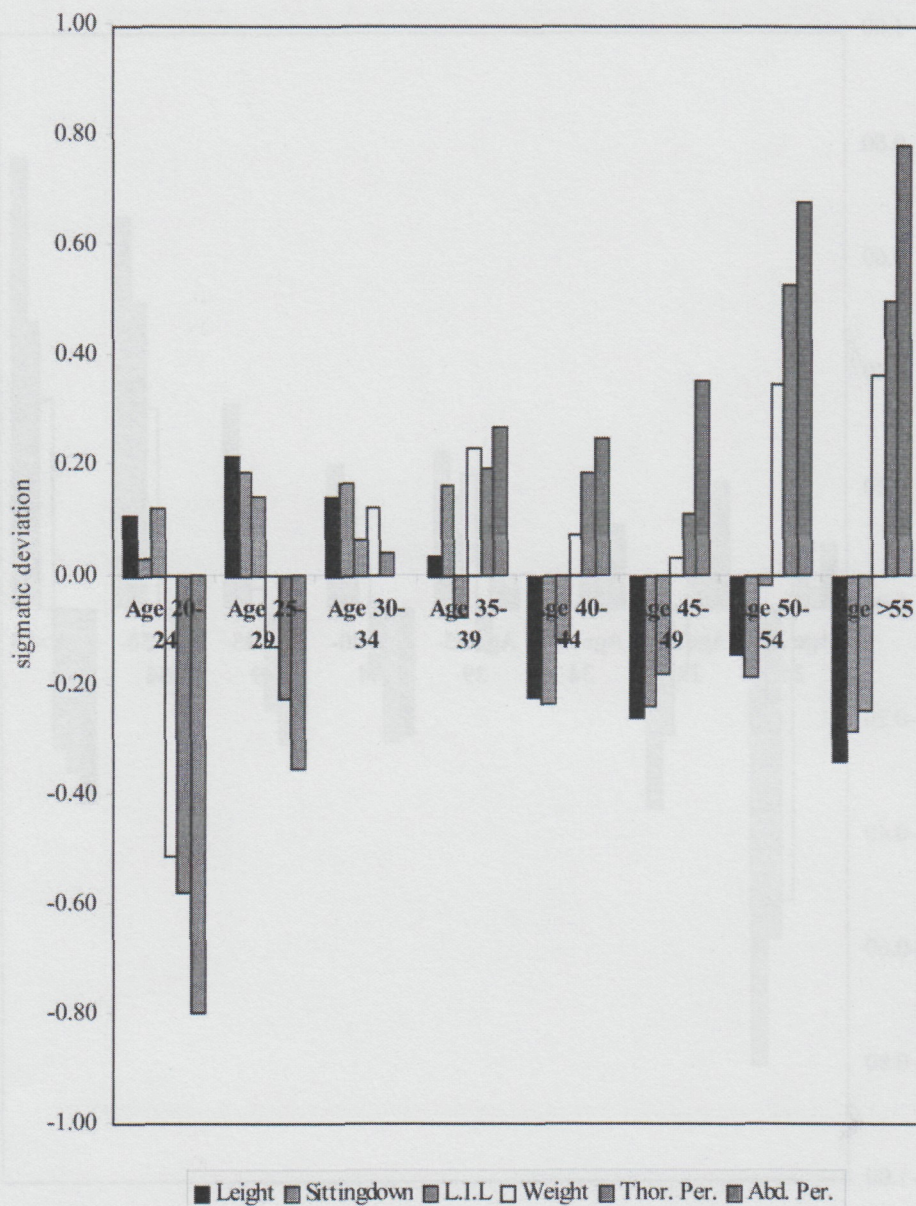


Fig. 2. – The Z-score values for some body mass indices in Transylvania urban male population.

Anthropology could bring information about the age when all these diseases start insidiously, about the influence of sexual dimorphism, the influence of ecological, cultural, psychological factors and so.

As a result of the opportunities offered by medical anthropology for the medical practice, anthropology is not only an anchor point for populations' physical normality status, but also an information source for the predispositions to a certain pathology or the border statuses between normality and pathological as well (Glavce Cristiana *et al.*, 2003).

In a study upon the body mass variability in Romanian urban population, published in 2004 (and conducted upon 14613 subjects, of whom 6611 were men and 8002 were women) we presented the distribution in the assessment scale of BMI, from where the following conclusions could be drawn: the "normal" population, as regards body mass, includes 63.15% males and 61.25% female; the population characterized by overweight comprises a percentage of 35.54% males and 35.87% females (Radu Elena *et al.*, 2004). The population presenting underweight summarizes only 1.32% males and 2.48% females (Table 13).

By comparison, the Transylvanian urban population lists 59.92% males and 64.49% females in normality category; 38.92% males and 32.27% females are included in overweight category and 1.15% males and 3.23% females in underweight category (Table 12).

Analysis of body mass index in Transylvania urban population emphasized, both for the male and female series, values of this index that fall within the limits of normality category for the ages between 20 and 49; after the age of 50, both for men and women, the average value of BMI (of 27.31% and 27.62%) corresponds to the inferior limit of overweight (Tables 14 and 15).

In the cities we studied, the average values of BMI indicate the predominance of normality for both male and female series.

Since the average values include the positive and negative variables of BMI variability, we considered useful the analysis of variability by gender and classification scale of this index.

For the male series, the normality category of the body mass, placed between the values of 18.50 and 24.99, indicates a decrease of normality frequency from 84.38% until the age of 24 to 75.98% until the age of 29, to 61.54% until the age of 34, to 52.48% until the age 39, 53.70% until the age of 44, 48.91% until the age of 49 and 36.32% after the age of 55. Finally, the ratio of normal population as concerns the body mass decreases up to one third of total population.

Analyzing table 14 we observe that the decrease of normal population percentage is correlated with the increase of overweight population proportion: 13.75% before the age of 24, 22.55% before the age of 29, 37.76% before the age of 34 (one third of population), 45.54% before the age of 39, 45.37% before the age of 44, 49.64% before the age of 49 and 63.68% after the age of 55.

In the urban female population, normality class decreases as representativeness in proportion as we move forward from an age group to another: 79.32% until the

age of 24, 75.14% until the age of 29, 73.39% until the age of 34, 67.72% until the age of 39, 58.09% until the age of 44, 40.85% until the age of 49 and 29.11% after the age of 50 (Table 15).

The comparison analysis of both male and female urban population indicates a clear differentiation as regards the evolution of body mass by sex, the female series recording after the age of 50 a twice-smaller proportion of normal population as regards this aspect than the male series. This situation is due to a higher frequency of overweight, as they get old.

Furthermore, if we make a comparison analysis of male and female series, we notice that until the age of 44, overweight is more frequent in males comparing with females and after the age of 45 this frequency is higher in females: 59.15% until the age of 49 and 70.25% after the age of 50.

The comparison analysis of BMI variability within the Quetelet scale of classification for Transylvania urban population comparing to a national sample of 14000 subjects leads us to the following conclusions: overweight in Transylvania urban male population represents 49.64% for the age group of 45–49 (almost half of population aged 39–49 displays different degrees of obesity) and more than 60% for the over 50 population (Radu Elena *et al.*, 2003, 2004, 2005) (Tables 16 and 17).

Table 1

Variability of some body dimensions in Transylvania urban population

Females

DIMENSIONS	N	AVERAGE	σ	MINIMUM	MAXIMUM	VAR. Q.
Height	2049	1607 12	59 00	1420	1795	3.67
Sitting height	2049	854 38	32 33	755	955	3 78
Length of inferior limb	2049	752 64	41 40	618	883	5 50
Weight	2049	61 24	9 02	41	93	14 73
Thorax perimeter	2049	893 84	74 71	700	1200	8 36
Waist perimeter	2049	768 37	85 78	560	1100	11 16

Males

DIMENSIONS	N	AVERAGE	σ	MINIMUM	MAXIMUM	VAR. Q.
Height	1216	1714 22	62 36	1521	1895	3 64
Sitting height	1216	891 29	35 88	780	995	4 03
Length of inferior limb	1216	823 09	46 15	670	990	5 61
Weight	1216	71 64	10 04	45	108	14 01
Thorax perimeter	1216	963 37	70 63	780	1200	7 33
Waist perimeter	1216	881 81	96 07	640	1170	10 89

Table 2

Variability of some body dimensions by age groups in Transylvania urban female population

Age 16–24

DIMENSIONS	N	MEAN	σ	MINIMUM	MAXIMUM	VAR. Q.	St. Dev.
Height	392	1608.20	64.39	1311	1822	4.00	0.13
Sitting height	392	849.82	43.54	341	940	5.12	0.01
Length of inferior limb	392	758.48	46.15	520	970	6.08	0.15
Weight	392	56.52	6.81	40	94	12.05	-0.50
Thorax perimeter	392	845.81	61.77	280	1080	7.30	-0.24
Waist perimeter	392	715.10	60.54	560	1000	8.47	-0.36

Age 25–29

DIMENSIONS	N	MEAN	σ	MINIMUM	MAXIMUM	VAR. Q.	St. Dev.
Height	471	1614.90	59.37	1472	1810	3.68	0.16
Sitting height	471	853.96	47.24	450	1317	5.53	0.05
Length of inferior limb	471	760.94	49.49	420	1091	6.50	0.16
Weight	471	59.00	8.58	39	104	14.54	-0.25
Thorax perimeter	471	866.11	68.76	500	1120	7.94	-0.16
Waist perimeter	471	743.96	71.42	590	1050	9.60	-0.19

Age 30–34

DIMENSIONS	N	MEAN	σ	MINIMUM	MAXIMUM	VAR. Q.	St. Dev.
Height	422	1608.88	64.52	1353	1877	4.01	0.07
Sitting height	422	853.98	33.36	760	951	3.91	0.05
Length of inferior limb	422	754.90	46.26	500	990	6.13	0.04
Weight	422	59.95	8.75	42	101	14.60	-0.15
Thorax perimeter	422	887.69	70.40	610	1140	7.93	-0.06
Waist perimeter	422	759.13	75.42	600	1090	9.94	-0.11

Age 35–39

DIMENSIONS	N	MEAN	σ	MINIMUM	MAXIMUM	VAR. Q.	St. Dev.
Height	312	1606 28	61 17	1358	1820	3 81	0 03
Sitting height	312	853 17	32 32	766	961	3 79	0 03
Length of inferior limb	312	753 11	45 29	528	883	6 01	0 005
Weight	312	61 90	9 24	44	105	14 92	0 06
Thorax perimeter	312	907 19	70 71	620	1200	7 79	0 03
Waist perimeter	312	779 28	81 33	610	1100	10 44	0 002

Age 40–44

DIMENSIONS	N	MEAN	σ	MINIMUM	MAXIMUM	VAR. Q.	St. Dev.
Height	289	1602 78	60 27	1450	1802	3 76	–0 03
Sitting height	289	849 14	45 61	477	1010	5 37	–0 06
Length of inferior limb	289	753 63	56 79	530	1131	7 54	0 02
Weight	289	63 79	9 20	43	94	14 42	0 26
Thorax perimeter	289	917 78	76 00	720	1290	8 28	0 08
Waist perimeter	289	802 51	86 78	620	1170	10 81	0 13

Age 45–49

DIMENSIONS	N	MEAN	σ	MINIMUM	MAXIMUM	VAR. Q.	St. Dev.
Height	240	1589 90	56 72	1407	1785	3 57	–0 23
Sitting height	240	846 46	34 75	732	943	4 11	–0 13
Length of inferior limb	240	743 45	44 39	610	869	5 97	–0 19
Weight	240	65 41	9 10	48	91	13 92	0 43
Thorax perimeter	240	942 17	80 69	720	1500	8 56	0 19
Waist perimeter	240	831 36	85 96	610	1040	10 34	0 29

Age > 50

DIMENSIONS	N	MEAN	σ	MINIMUM	MAXIMUM	VAR. Q.	St. Dev.
Height	161	1576 93	66 45	1415	1802	4 21	–0 44
Sitting height	161	845 43	35 56	767	951	4 21	–0 15
Length of inferior limb	161	731 50	48 67	549	851	6 65	–0 42
Weight	161	68 63	11 58	42	109	16 87	0 76
Thorax perimeter	161	966 34	92 39	720	1230	9 56	0 30
Waist perimeter	161	875 09	109 69	630	1160	12 53	0 53

Table 3

Variability of some body dimensions by age groups in Transylvania urban male population

Age 16–24

DIMENSIONS	N	MEAN	σ	MINIMUM	MAXIMUM	VAR. Q.	St. Dev.
Height	243	1721.16	62.61	1554	1861	3.64	0.11
Sitting height	243	892.45	34.71	795	976	3.89	0.03
Length of inferior limb	243	828.71	45.93	732	990	5.54	0.12
Weight	243	66.50	7.72	46	92	11.61	-0.51
Thorax perimeter	243	922.40	53.65	780	1110	5.82	-0.58
Waist perimeter	243	805.08	74.68	640	1100	9.28	-0.80

Age 25–29

DIMENSIONS	N	MEAN	σ	MINIMUM	MAXIMUM	VAR. Q.	St. Dev.
Height	297	1727.89	62.44	1543	1895	3.61	0.22
Sitting height	297	898.11	35.82	802	988	3.99	0.19
Length of inferior limb	297	829.76	46.59	684	980	5.61	0.14
Weight	297	70.33	9.07	47	101	12.90	-0.13
Thorax perimeter	297	947.42	65.02	780	1150	6.86	-0.23
Waist perimeter	297	847.68	81.46	670	1140	9.61	-0.36

Age 30–34

DIMENSIONS	N	MEAN	σ	MINIMUM	MAXIMUM	VAR. Q.	St. Dev.
Height	246	1723.12	63.98	1531	1887	3.71	0.14
Sitting height	246	897.26	35.72	814	995	3.98	0.17
Length of inferior limb	246	826.07	47.67	676	978	5.77	0.06
Weight	246	72.85	9.55	49	102	13.11	0.12
Thorax perimeter	246	966.21	65.93	810	1180	6.82	0.04
Waist perimeter	246	881.48	85.57	670	1130	9.71	-0.003

Age 35–39

DIMENSIONS	N	MEAN	σ	MINIMUM	MAXIMUM	VAR. Q.	St. Dev.
Height	145	1716.37	59.07	1571	1895	3.44	0.03
Sitting height	145	897.17	36.76	821	982	4.10	0.16
Length of inferior limb	145	819.54	42.99	728	935	5.25	-0.08
Weight	145	73.97	11.02	49	108	14.90	0.23
Thorax perimeter	145	977.10	70.99	802	1200	7.27	0.19
Waist perimeter	145	907.68	88.12	670	1145	9.71	0.27

Age 40–44

DIMENSIONS	N	MEAN	σ	MINIMUM	MAXIMUM	VAR. Q.	St. Dev.
Height	155	1700.46	56.62	1560	1878	3.33	-0.22
Sitting height	155	882.86	36.45	780	982	4.13	-0.23
Length of inferior limb	155	817.64	45.75	670	945	5.60	-0.12
Weight	155	72.38	9.65	50	99	13.33	0.07
Thorax perimeter	155	976.36	66.75	800	1140	6.84	0.18
Waist perimeter	155	905.57	75.50	710	1100	8.34	0.25

Age 45–49

DIMENSIONS	N	MEAN	σ	MINIMUM	MAXIMUM	VAR. Q.	St. Dev.
Height	156	1698.09	59.02	1528	1880	3.48	-0.26
Sitting height	156	882.70	33.94	787	973	3.85	-0.24
Length of inferior limb	156	814.69	44.56	701	966	5.47	0.18
Weight	156	71.95	10.06	50	100	13.98	0.03
Thorax perimeter	156	971.22	71.05	790	1110	7.32	0.11
Waist perimeter	156	915.75	91.15	720	1130	9.95	0.35

Age 50–54

DIMENSIONS	N	MEAN	σ	MINIMUM	MAXIMUM	VAR. Q.	St. Dev.
Height	135	1705 20	62 70	1521	1878	3 68	–0 14
Sitting height	135	884 66	34 79	798	975	3 93	–0 18
Length of inferior limb	135	822 28	46 78	718	931	5 69	–0 02
Weight	135	75 13	11 29	45	102	15 02	0 35
Thorax perimeter	135	1000 63	77 39	800	1200	7 73	0 53
Waist perimeter	135	946 83	91 57	720	1150	9 67	0 68

Age > 55

DIMENSIONS	N	MEAN	σ	MINIMUM	MAXIMUM	VAR. Q.	St. Dev.
Height	102	1693 04	59 14	1568	1830	3 49	–0 34
Sitting height	102	881 00	33 03	806	957	3 75	–0 29
Length of inferior limb	102	811 75	43 69	712	912	5 38	–0 25
Weight	102	75 29	10 77	50	97	14 31	0 36
Thorax perimeter	102	998 50	69 36	870	1150	6 95	0 50
Waist perimeter	102	956 56	90 74	730	1170	9 49	0 78

Table 4

Variability of body dimensions and conformation in Transylvania urban male population
by classification scales

MARTIN SCALE											
HEIGHT	Short		Under average		Average		Super-average		Tall		TOTAL
	x-1599		1600–1639		1640–1669		1670-1699		1700-x		
	N	%	N	%	N	%	N	%	N	%	
20–24 years	1	0 42	20	8 37	34	14 23	38	15 90	146	61 09	239
25–29 years	5	1 69	13	4 41	35	11 86	38	12 88	204	69 15	295
30–34 years	6	2 44	16	6 50	28	11 38	36	14 63	160	65 04	246
35–39 years	2	1 38	14	9 66	12	8 28	29	20 00	88	60 69	145
40–44 years	5	3 23	16	10 32	21	13 55	39	25 16	74	47 74	155
45–49 years	6	3 87	18	11 61	18	11 61	36	23 23	77	49 68	155
50–54 years	5	3 76	11	8 27	20	15 04	23	17 29	74	55 64	133
>55 years	6	5 88	12	11 76	18	17 65	22	21 57	44	43 14	102
TOTAL	36	2 44	122	8 28	187	12 69	261	17 71	868	58 89	1474

MARTIN SCALE											
SITTING HEIGHT	Short		Under average		Average		Super- average		Tall		TOTAL
	x-799		800-849		850-899		900-949		950-x		
	N	%	N	%	N	%	N	%	N	%	
20-24 years	2	0 84	26	10 88	113	47 28	88	36 82	10	4 18	239
25-29 years	0	0 00	29	9 86	117	39 80	125	42 52	23	7 82	294
30-34 years	0	0 00	25	10 25	96	39 34	103	42 21	20	8 20	244
35-39 years	0	0 00	17	11 81	60	41 67	54	37 50	13	9 03	144
40-44 years	1	0 65	21	13 73	84	54 90	42	27 45	5	3 27	153
45-49 years	2	1 3	22	14 29	85	55 19	42	27 27	3	1 95	154
50-54 years	1	0 75	20	15 04	65	48 87	44	33 08	3	2 26	133
>55 years	0	0 00	18	17 82	55	54 46	26	25 74	2	1 98	101
TOTAL	6	0 41	179	12 21	677	46 18	525	35 81	79	5 39	1466

MARTIN SCALE											
ROHRER INDEX	Hypotrophy		Under- eutrophy		Eutrophy		Super- eutrophy		Hypertrophy		TOTAL
	x-1 19		1 20-1 34		1 35-1 54		1 55-1 69		1 70-x		
	N	%	N	%	N	%	N	%	N	%	
20-24 years	158	68 40	46	19 91	26	11 26	1	0 43	0	0 00	231
25-29 years	141	49 65	80	28 17	49	17 25	11	3 87	3	1 06	284
30-34 years	91	38 08	83	34 73	44	18 41	16	6 69	5	2 09	239
35-39 years	52	37 41	40	28 78	36	25 90	4	2 88	7	5 04	139
40-44 years	74	49 33	40	26 67	25	16 67	9	6 00	2	1 33	150
45-49 years	71	47 33	41	27 33	29	19 33	8	5 33	1	0 67	150
50-54 years	46	36 51	36	28 57	30	23 81	10	7 94	4	3 17	126
>55 years	39	39 80	25	25 51	23	23 47	9	9 18	2	2 04	98
TOTAL	665	47 13	391	27 71	263	18 64	68	4 82	24	1 70	1411

Table 5

Variability of body dimensions and conformation in Transylvania urban female population by classification scales

MARTIN SCALE											
HEIGHT	Short		Under average		Average		Super-average		Tall		TOTAL
	x-1489		1490-1529		1530-1559		1560-1589		1590-x		
	N	%	N	%	N	%	N	%	N	%	
20-24 years	6	1 54	16	4 11	44	11 31	78	20 05	245	62 98	389
25-29 years	3	0 64	31	6 62	64	13 68	68	14 53	302	64 53	468
30-34 years	12	2 85	29	6 89	50	11 88	66	15 68	264	62 71	421
35-39 years	6	1 93	27	8 68	28	9 00	60	19 29	190	61 09	311
40-44 years	9	3 13	23	7 99	35	12 15	54	18 75	167	57 99	288
45-49 years	10	4 20	16	6 72	38	15 97	51	21 43	123	51 68	238
50-54 years	10	7 09	16	11 35	31	21 99	28	19 86	56	39 72	141
>55 years	1	5 56	3	16 67	3	16 67	3	16 67	8	44 44	18
TOTAL	61	2 22	179	6 51	330	12 00	487	17 71	1693	61 56	2750

MARTIN SCALE											
SITTING HEIGHT	Short		Under average		Average		Super- average		Tall		TOTAL
	x-749		750-799		800-849		850-899		900-x		
	N	%	N	%	N	%	N	%	N	%	
20-24 years	0	0 00	18	4 62	159	40 77	185	47 44	28	7 18	390
25-29 years	0	0 00	12	2 56	201	42 95	213	45 51	42	8 97	468
30-34 years	0	0 00	21	5 00	163	38 81	198	47 14	38	9 05	420
35-39 years	0	0 00	14	4 52	136	43 87	143	46 13	17	5 48	310
40-44 years	0	0 00	14	4 95	127	44 88	124	43 82	18	6 36	283
45-49 years	0	0 00	18	7 50	112	46 67	96	40 00	14	5 83	240
50-54 years	0	0 00	14	9 79	67	46 85	57	39 86	5	3 50	143
>55 years	0	0 00	2	11 11	10	55 56	4	22 22	2	11 11	18
TOTAL	0	0 00	117	4 25	1108	40 28	1300	47 26	226	8 22	2751
MARTIN SCALE											
ROHRER INDEX	Hypotrophy		Under- eutrophy		Eutrophy		Super- eutrophy		Hypertrophy		TOTAL
	x-1 19		1 20-1 34		1 35-1 54		1 55-1 69		1 70-x		
	N	%	N	%	N	%	N	%	N	%	
20-24 years	40	10 39	167	43 38	116	30 13	39	10 13	23	5 97	385
25-29 years	29	6 29	180	39 05	146	31 67	51	11 06	55	11 93	461
30-34 years	15	3 59	134	32 06	151	36 12	48	11 48	70	16 75	418
35-39 years	6	1 96	66	21 57	121	39 54	43	14 05	70	22 88	306
40-44 years	3	1 06	47	16 55	113	39 79	34	11 97	87	30 63	284
45-49 years	1	0 42	26	10 97	69	29 11	36	15 19	105	44 30	237
50-54 years	1	0 72	7	5 04	27	19 42	22	15 83	82	58 99	139
>55 years	0	0 00	1	5 88	5	29 41	1	5 88	10	58 82	17
TOTAL	125	4 59	785	28 85	923	33 92	316	11 61	572	21 02	2721

Table 6
Variability of body dimensions in urban population, Deva city

MEN					WOMEN			
Dimensions	N	Average	$\pm\sigma$	Var Q	N	Average	$\pm\sigma$	Var Q
Height	167	1724 94	60 95	3 53	236	1608 43	56 26	3 50
Sitting height	167	892 98	32 61	3 65	236	848 29	35 36	4 17
Length of the inferior limb	167	832 73	45 76	5 50	236	761 32	36 94	4 85
Weight	167	74 43	9 55	12 83	236	62 07	8 34	13 44
Thorax Circumference	167	953 46	61 78	6 48	236	855 56	55 11	6 44
Waist Circumference	167	883 74	75 32	8 52	236	761 54	69 19	9 09

Table 7
Variability of body dimensions in urban population, Braşov city

MEN					WOMEN			
Dimensions	N	Average	$\pm\sigma$	Var Q	N	Average	$\pm\sigma$	Var Q
Height	334	1705 70	62 95	3 69	974	1596 99	59 03	3 70
Sitting height	334	899 89	33 79	3 75	974	851 43	32 46	3 81
Length of the inferior limb	334	805 74	44 46	5 52	974	744 80	42 76	5 74
Weight	334	70 38	9 71	13 80	974	61 26	8 96	14 63
Thorax Circumference	334	960 70	66 48	6 92	974	905 43	76 09	8 40
Waist Circumference	334	868 96	95 28	10 96	974	784 94	91 03	11 60

Table 8
Variability of body dimensions in urban population, Cluj city

MEN					WOMEN			
Dimensions	N	Average	$\pm\sigma$	Var Q	N	Average	$\pm\sigma$	Var Q
Height	130	1719 89	58 64	3 41	452	1616 61	60 59	3 75
Sitting height	130	886 78	32 54	3 67	452	849 57	32 42	3 82
Length of the inferior limb	130	833 19	40 14	4 82	452	767 02	40 54	5 29
Weight	130	71 39	9 34	13 08	452	61 76	8 73	14 13
Thorax Circumference	130	984 58	66 49	6 75	452	893 42	66 24	7 41
Waist Circumference	130	894 88	105 46	11 78	452	767 76	78 83	10 27

Table 9

Variability of body dimensions in urban population, Arad city

MEN					WOMEN			
Dimensions	N	Average	$\pm\sigma$	Var Q	N	Average	$\pm\sigma$	Var Q
Height	245	1727.67	61.04	3.53	267	1598.13	54.43	3.41
Sitting height	245	903.96	33.19	3.67	267	853.82	28.30	3.31
Length of the inferior limb	245	823.71	42.35	5.14	267	744.49	39.50	5.31
Weight	245	71.82	10.29	14.33	267	60.70	9.22	15.19
Thorax Circumference	245	965.02	71.81	7.44	267	884.43	66.53	7.52
Waist Circumference	245	847.93	91.89	10.84	267	752.68	81.58	10.84

Table 10

Variability of body dimensions in urban male population, Hunedoara city

MEN				
Dimensions	N	Average	$\pm\sigma$	Var Q
Height	340	1712.37	60.59	3.54
Sitting height	340	868.69	32.61	3.75
Length of the inferior limb	340	843.49	44.77	5.31
Weight	340	71.12	8.92	12.55
Thorax Circumference	340	953.26	70.41	7.39
Waist Circumference	340	901.54	84.78	9.40

Table 11

Variability of body dimensions in urban female population, Sibiu city

WOMEN				
Dimensions	N	Average	$\pm\sigma$	Var Q
Height	120	1617.01	58.68	3.63
Sitting height	120	856.03	32.82	3.83
Length of the inferior limb	120	760.98	36.64	4.81
Weight	120	60.35	10.64	17.63
Thorax Circumference	120	905.58	99.18	10.95
Waist Circumference	120	735.80	90.49	12.30

Table 12

Quetelet index variability in Transylvanian male and female urban population

Categories		Men		Women	
		N	%	N	%
Underweight	≤ 16	0	0	2	0 09
	16–16 99	1	0 09	5	0 25
	17–18 49	11	1 05	58	2 88
Total		12	1.15	65	3.23
Normality	18 50–24 99	625	59.92	1295	64.49
Overweight	25–29 99	343	32 88	501	24 95
	30–39 99	63	6 04	143	7 12
	≥ 40	0	0	4	0 19
Total		406	38.92	648	32.27
General total		1043	100	2008	100

Table 13

Quetelet index variability in Romanian male and female urban population

Categories		Men		Women	
		N	%	N	%
Underweight	< 16	0	0	2	0 02
	16–16 99	4	0 06	31	0 39
	17–18 49	83	1 26	166	2 07
Total		87	1.32	199	2.48
Normality	18 50–24 99	4175	63.15	4933	61.65
Overweight	25–29 99	2001	30 27	2235	27 93
	30–39 99	347	5 25	624	7 80
	> 40	1	0 02	11	0 14
Total		2349	35.54	2870	35.87
General total		6611	100	8002	100

Table 14

Quetelet index variability by age-groups in Transylvanian male urban population

Categories		Age 20-24		Age 25-29		Age 30-34		Age 35-39		Age 40-44		Age 45-49		Age >50	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%
Underweight	≤ 16	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	16-16.99	1	0.63	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	17-18.49	2	1.25	3	1.47	1	0.70	2	1.98	1	0.93	2	1.46	0	0.00
Total		3	1.88	3	1.47	1	0.70	2	1.98	1	0.93	2	1.46	0	0.00
Normality	18.50-24.99	135	84.38	155	75.98	88	61.54	53	52.48	58	53.70	67	48.91	69	36.32
Overweight	25-29.99	21	13.13	39	19.12	47	32.87	39	38.61	38	35.19	64	46.72	95	50.00
	30-39.99	1	0.63	7	3.43	7	4.90	7	6.93	11	10.19	4	2.92	26	13.68
	≥ 40	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Total		22	13.75	46	22.55	54	37.76	46	45.54	49	45.37	68	49.64	121	63.68
General total		160	100	204	100	143	100	101	100	108	100	137	100	190	100

Table 15

Quetelet index variability by age-groups in Transylvanian female urban population

Categories		Age 20-24		Age 25-29		Age 30-34		Age 35-39		Age 40-44		Age 45-49		Age >50	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%
Underweight	≤ 16	1	0.31	1	0.28	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	16-16.99	2	0.62	1	0.28	2	0.54	0	0.00	0	0.00	0	0.00	0	0.00
	17-18.49	22	6.79	20	5.52	7	1.88	4	1.40	4	1.47	0	0.00	1	0.63
Total		25	7.72	22	6.08	9	2.42	4	1.40	4	1.47	0	0.00	1	0.63
Normality	18.50-24.99	257	79.32	272	75.14	273	73.39	193	67.72	158	58.09	96	40.85	46	29.11
Overweight	25-29.99	39	12.04	56	15.47	76	20.43	68	23.86	82	30.15	108	45.96	72	45.57
	30-39.99	2	0.62	12	3.31	14	3.76	20	7.02	28	10.29	31	13.19	36	22.78
	≥ 40	1	0.31	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	1.90
Total		42	12.96	68	18.78	90	24.19	88	30.88	110	40.44	139	59.15	111	70.25
General total		324	100	362	100	372	100	285	100	272	100	235	100	158	100

Table 16

Quetelet index variability by age-groups in Romanian male urban population

Categories		Age 20-24		Age 25-29		Age 30-34		Age 35-39		Age 40-44		Age 45-49		Age 50-54		Age > 55	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Underweight	< 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	16-16.99	0	0	0	0	0	0	0	0	0	0	0	0.00	1	0.32	0	0
	17-18.49	6	1.17	15	1.89	8	1.11	3	0.59	4	0.90	7	1.56	3	0.95	3	1.14
Total		6	1.17	15	1.89	8	1.11	3	0.59	4	0.90	7	1.56	4	1.27	3	1.14
Normality	18.50-24.99	430	83.98	562	70.78	450	62.67	282	55.29	234	52.94	215	47.78	122	38.73	93	35.23
Overweight	25-29.99	72	14.06	199	25.06	227	31.62	189	37.06	172	38.91	195	43.33	154	48.89	132	50
	30-39.99	4	0.78	17	2.14	33	4.60	36	7.06	32	7.24	33	7.33	35	11.11	36	13.64
	> 40	0	0	1	0.13	0	0	0	0	0	0	0	0.00	0	0	0	0
Total		76	14.84	217	27.33	260	36.21	225	44.12	204	46.15	228	50.67	189	60.00	168	63.64
		512	100	794	100	718	100	510	100	442	100	450	100	315	100	264	100

Table 17

Quetelet index variability by age-groups in Romanian female urban population

Categories		Age 20-24		Age 25-29		Age 30-34		Age 35-39		Age 40-44		Age 45-49		Age 50-54		Age > 55	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Underweight	< 16	0	0	1	0.09	0	0.00	0	0	0	0	0	0	0	0	0	0
	16-16.99	8	0.94	8	0.70	4	0.32	1	0.12	0	0	1	0.18	0	0.00	0	0
	17-18.49	40	4.72	46	4.04	20	1.62	8	0.99	8	1.12	1	0.18	2	0.65	1	1.89
Total		48	5.67	55	4.82	24	1.95	9	1.11	8	1.12	2	0.36	2	0.65	1	1.89
Normality	18.50-24.99	687	81.11	865	75.88	866	70.29	491	60.62	368	51.69	252	45.08	107	34.85	22	41.51
Overweight	25-29.99	103	12.16	199	17.46	284	23.05	250	30.86	255	35.81	227	40.61	130	42.35	20	37.74
	30-39.99	8	0.94	21	1.84	56	4.55	59	7.28	80	11.24	77	13.77	65	21.17	10	18.87
	> 40	1	0.12	0	0	2	0.16	1	0.12	1	0.14	1	0.18	3	0.98	0	0
Total		112	13.22	220	19.30	342	27.76	310	38.27	336	47.19	305	54.56	198	64.50	30	56.60
		847	100	1140	100	1232	100	810	100	712	100	559	100	307	100	53	100

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THE SOMATIC CONSTITUTION OF THE TRANSYLVANIAN RURAL POPULATION

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The paper refers to the Transylvanian rural population from 71 human communities with Romanian population and 10 human settlements inhabited by Saxon, Szekler, Hungarian and Roma people. We present an analysis of the somatic variation by sex and age and of sexual dimorphism as concerns the body dimensions and conformation. We point out the variation in the body mass by clusters in the male and female population and the BMI variation is graphically illustrated. As regards the BMI variation, sometimes significant differences between the rural and urban Transylvanian population were emphasized with a comparison with the entire Romanian population.

INTRODUCTION

The study of the somatic constitution in the Transylvanian rural population is part of the anthropological researches on the whole Romanian population. As a fundamental research with application in the anthropological and medical practice, it tries to define those anthropological parameters that are relevant for the population's nutritional health status.

In order to define the nutritional health status in the Transylvanian population we considered for this study the body mass dimensions and indices by which both the "normal" population's health status (within the statistic normality limits of a classification scale) and the extremes from the two ends of their variability range were highlighted.

We took into account the fact that the population's nutritional health is determined not only by genetic factors (which can outline certain constitutional "predispositions" to a certain nutritional pathology), but also by mesological factors, where the cultural factors play a cardinal role, shaping a certain lifestyle and a certain food behavior as part of it.

MATERIAL AND METHOD

The anthropological study was conducted upon a number of 2,854 subjects, 1,699 men and 1,155 women (Table 1).

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Table 1

Sample population's structure by gender and age groups

Age\Gender	Male		Female		Males and females	
	N	%	N	%	N	%
Age 20–24	154	9.06	118	10.22	272	9.53
Age 25–29	186	10.95	157	13.59	343	12.02
Age 30–34	214	12.60	163	14.11	377	13.21
Age 35–39	245	14.42	174	15.06	419	14.68
Age 40–44	242	14.24	170	14.72	412	14.44
Age 45–49	236	13.89	160	13.95	396	13.87
Age 50–54	185	10.89	87	7.53	272	9.53
Age ≥ 55	237	13.94	126	10.91	363	12.72
Total	1699	100	1155	100	2854	100

The Transylvanian population sample comes from 71 settlements and was divided into 29 population clusters that included members of some human communities showing similar anthropometrical features. The Saxon, Szekler, Hungarian and Roma inhabitants have also been studied (976 subjects).

We studied the variability of some body mass dimensions and the BMI (or Quetelet Index), a sensitive indicator of the population's nutritional health status and of the pathological potential tendencies.

VARIABILITY IN THE BODY MASS BY SEX AND AGE

1. BMI variation in the male population

The analysis of the BMI variation by age brings to light the following aspects: the somatic normality varies between 87.50% for the age 20–24 and 72.10% for the age of or over 50 (Table 2); underweight varies between 0.70% for the 25–29 years old and 5.40% for over 50 people; overweight increases from 8.70% for the age of 20–25 up to 26.70% for the age group 35–39 and afterwards it decreases to 22.50% in the males aged over 50.

As a mean value, the BMI reaches 21.98 for the 20–24 years old and 23.43 for the 45–49 years old (Table 3 and Fig. 1).

2. BMI variation in the female population

As regards the body mass variation by age as expressed by BMI (Quetelet Index), we recorded the following traits: the somatic normality varies between 86.20% for the age group 20–24 and 54.20% for the age of 50 or over (Table 4);

underweight was found in proportion of 5.50% for the 20–24 years old and 4.50% for the age-group over 50, overweight has a larger variability range, namely 8.30% for women aged 20–24 and 41.3% for women aged over 50.

The evolution of the average BMI values by age highlights the predominance of normality that varies between 21.71 for the women aged 20–24 and 25.28 for women aged 50–54 (Table 5 and Fig. 1).

3. Body mass sexual dimorphism

The comparison analysis of the BMI variation by age shows a strong sexual dimorphism manifested in the evolution of the overweight frequency.

We will analyze 3 age groups as follows: the 20–24 years old class records an overweight frequency of 8.70% in the male series and of 8.30% in the female series (an insignificant difference), the age group 35–39 (ages when the changes of the body mass dimensions and of the indices mean values begin) shows an overweight frequency of 26.70% in the male population and of 38.10% in the female one, for the ages of 50 or more the overweight frequency is significantly bigger in the female series (41.30%) in comparison with the male population (22.50%) (Tables 2 and 4).

The BMI mean value in the male population reaches 22.93 while in the female one it reaches 23.85, both values being included in the normality category, although in the age groups the differences between men and women are evident (Tables 3 and 5).

4. The BMI variability by residence area

Regarding the average BMI values in the male series, we noticed a significant difference, the urban male population is significantly more corpulent than the rural one, for all the age groups except the 20–24 years old (Table 8, Fig. 2). The significance level was established at the threshold of 5% ($p\text{-value} < 0.05$). The biggest difference is encountered at the age of 50 or over (–14.30) and in 40–44 years old (–7.34). Between the urban and rural female series the body mass differences appear in the 25–29 years old (–3.19) and in the population aged over 45 (–2.75) (Table 9, figure 3). As in the male series, the strongest difference is noticed in populations aged over 50 (–6.48).

If we make a comparison analysis of the mean indices in the urban and the rural areas, we observe that the male series records highly significant differences between the urban population represented by the 5 urban centers and the rural one, the former having higher BMI values (Table 10). For the female series we did not record significant differences of the BMI values between the urban and the rural areas (Table 11).

For a more subtle interpretation of the body mass variation by residence area we accomplished a comparison of its analysis thereof by the classification scale of the Quetelet Index (BMI).

In the male series the overweight frequency is significantly higher in the urban area (38.93%), as compared with the rural area (21.52%). All these considerable differences between urban and rural areas become evident especially after the age of

40–44, when in the urban area the overweight frequency is double (45.37%) that of the rural area (19.80%). At the age of 50 and afterward, the difference between urban and rural males' overweight is threefold (63.68% as compared with 22.45%) (Table 12).

For the female series the overweight frequency difference between urban and rural areas is insignificant (32.66% in the rural area and 32.27% in the urban one). However, the differences in the overweight frequency appear when we analyze its variability by age groups beginning with the age of 45 (43.92% in the rural area and 59.15% in the urban area), reaching its culminating value in the last age group, in which the frequency of overweight runs up to 70.25% of the population, while in the rural females series it remains around 41.29% (Table 13).

5. The body mass variation by population clusters

The analysis of the body mass indices for the male population divided by clusters (Tables 14–17, Fig. 4) indicates that the body mass indices for the villages in Cluster 1 are lower in all the age groups as compared with the indices calculated for the populations from other clusters; for the populations from the villages of Cluster 1, the maximum value of the index is recorded in a younger age group (30–39 years old) – sensibly equal to the value of the index recorded the over -50 age group, as compared with the populations from the other clusters where the maximum value of the index was found in the over-50 age group (Cluster 2, Cluster 3 and Cluster 4).

BMI

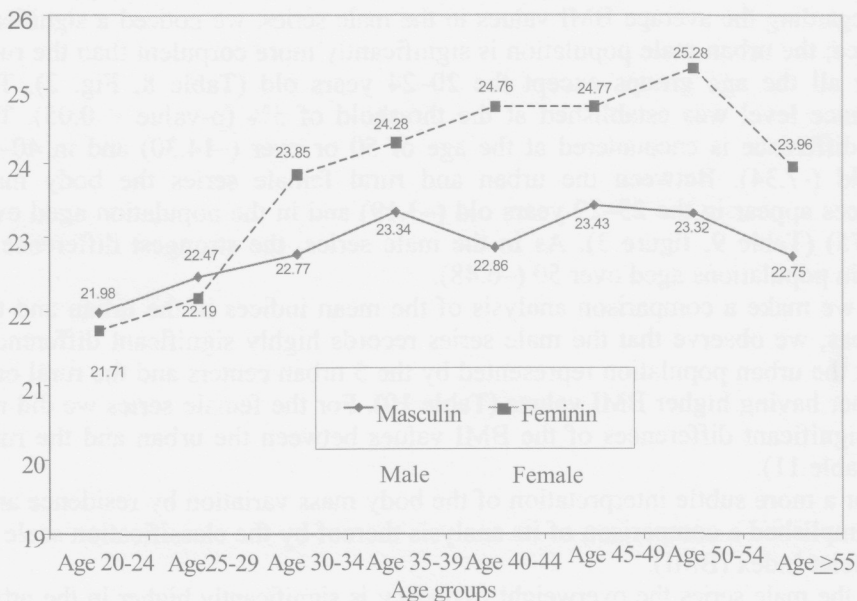


Fig. 1. – Evolution of the Quetelet Index (BMI) by age groups – total sample.

For the female population from the analysis of body mass by clusters (Tables 18–21, Fig. 5), we drew the following conclusions: for the villages from Cluster 2, the maximum BMI value can be found in a younger age group (the 30–39 years old); for the villages from the Cluster 1 and Cluster 3, the maximum value of BMI can be found in the 40–49 years old, while in Cluster number 4, the maximum value of BMI was recorded in the subjects aged 50 and over.

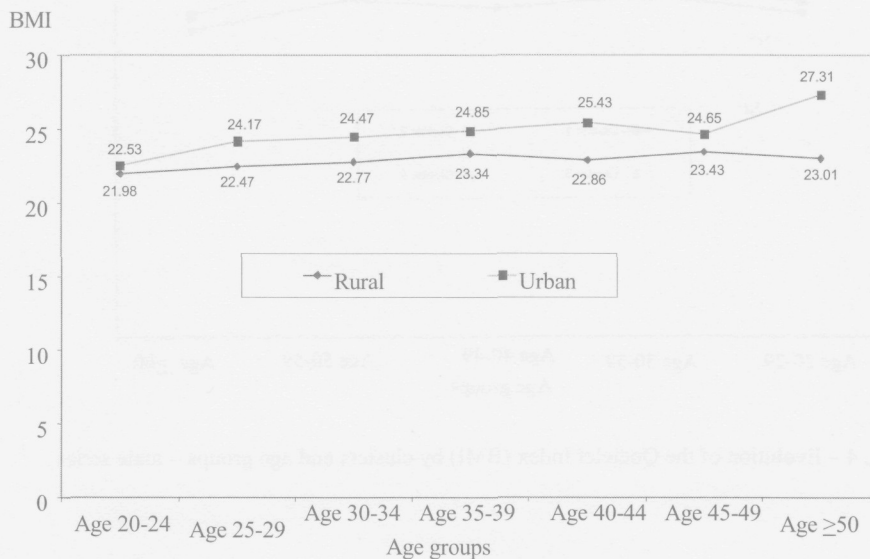


Fig. 2. – Evolution of the mean BMI values by age groups – male population.

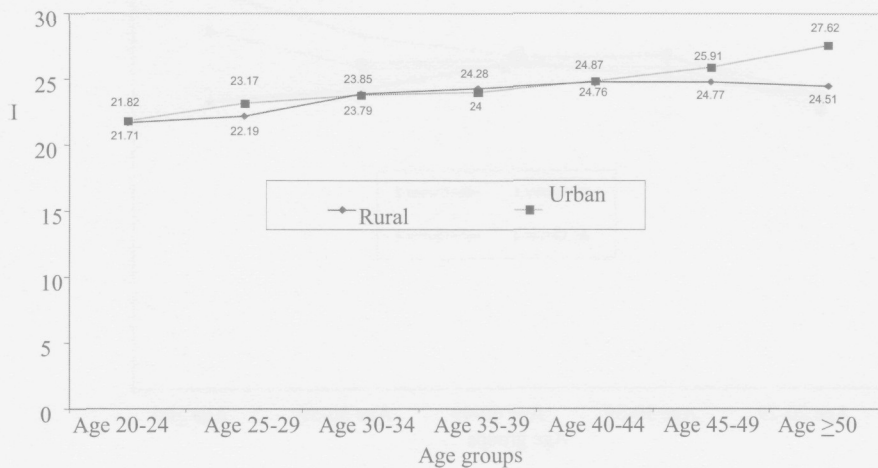


Fig. 3. – Evolution of the mean indicators by age groups – female population.

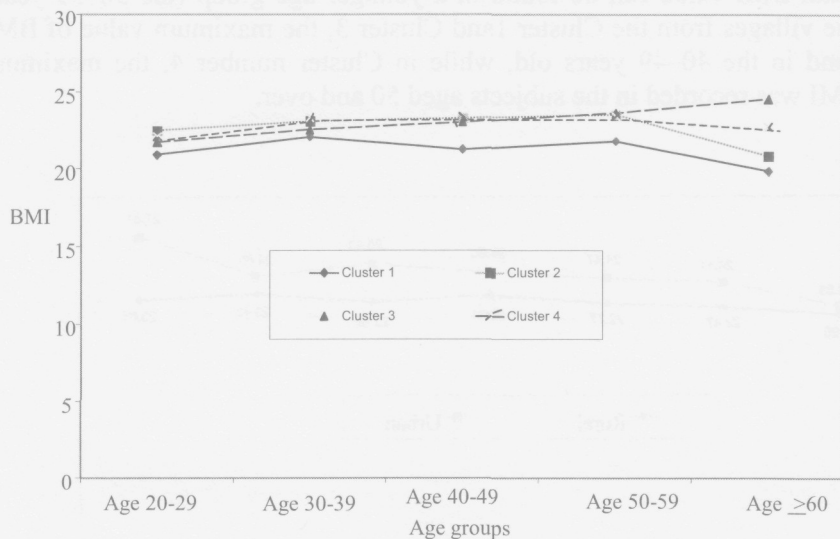


Fig. 4 – Evolution of the Quetelet Index (BMI) by clusters and age groups – male series.

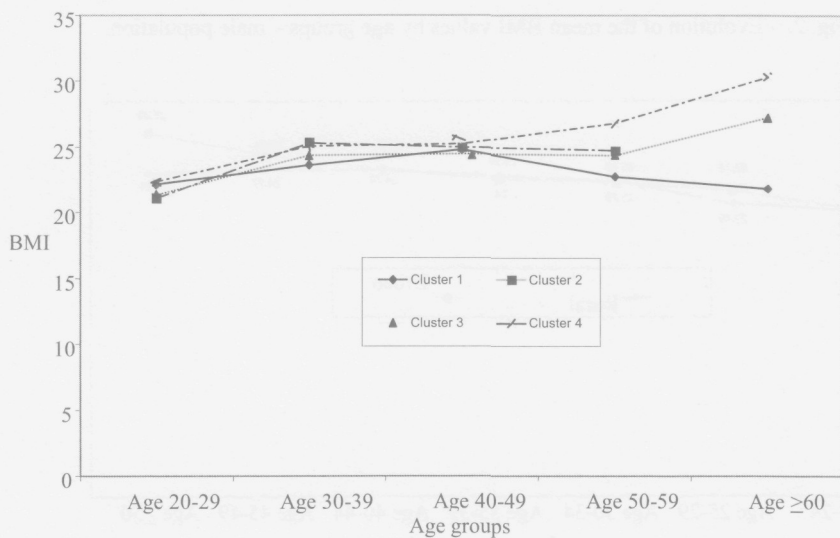


Fig. 5. – Evolution of the Quetelet Index (BMI) by clusters and age groups – female series.

Table 2
Quetelet index variability by age groups – rural male series

Categories		Age 20–24		Age 25–29		Age 30–34		Age 35–39		Age 40–44		Age 45–49		Age ≥ 50	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%
Underweight	<16.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0,30
	16–16.99	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	0,70
	17–18.49	4	3.80	1	0.70	3	1.90	5	2.50	6	3.00	4	2.20	13	4,40
TOTAL		4	3.80	1	0.70	3	1.90	5	2.50	6	3.00	4	2.20	16	5.40
Normality	18.5–24.99	91	87.50	114	82.60	123	76.40	143	70.80	152	77.20	129	70.90	212	72,10
Overweight	25–29.99	9	8.70	19	13.80	33	20.50	48	23.70	38	19.30	43	23.60	54	18,40
	30–39.99	0	0.00	4	2.90	2	1.20	6	3.00	1	0.50	6	3.30	12	4,10
	≥ 40.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0,00
TOTAL		9	8.70	23	16.70	35	21.70	54	26.70	39	19.80	49	26.90	66	22.50
General total		104	100.00	138	100.00	161	100.00	202	100.00	197	100.00	182	100.00	294	100.00

Table 3
Statistic indicators of BMI by age groups in the male population

Age\Indices	Minimum	Maximum	Median	Mod	Mean	Std. Dev.	Var. Q %	N
Age 20-24	17.53	27.59	21.72	19.63	21.98	2.06	9.37	104
Age 25-29	17.95	36.22	21.84	19.84	22.47	2.74	12.19	138
Age 30-34	17.02	33.36	22.34	21.43	22.77	2.88	12.05	161
Age 35-39	17.85	32.79	22.86	21.17	23.34	2.93	12.55	202
Age 40-44	17.91	30.37	22.62	21.51	22.86	2.60	11.37	197
Age 45-49	17.51	32.51	22.80	19.95	23.43	2.98	12.72	182
Age 50-54	16.59	34.87	22.77	19.06	23.32	3.39	14.54	133
Age ≥ 55	15.33	38.02	22.26	18.08	22.75	3.50	15.38	161
Total	15.33	38.02	22.49	20.98	22.93	2.96	12.91	1278

Table 4

Quetelet index variability by age groups – rural female series

Categories		Age 20–24		Age 25–29		Age 30–34		Age 35–39		Age 40–44		Age 45–49		Age ≥ 50	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%
Underweight	<16.00	0	0.00	1	0.70	0	0.00	0	0.00	0	0.00	1	0.70	0	0.00
	16–16.99	1	0.90	2	1.40	2	1.40	0	0.00	0	0.00	3	2.00	2	1.00
	17–18.49	5	4.60	9	6.40	2	1.40	7	4.40	5	3.40	1	0.70	7	3.50
TOTAL		6	5.50	12	8.60	4	2.80	7	4.40	5	3.40	5	3.40	9	4.50
Normalit	18.5–24.99	94	86.20	107	76.40	94	67.10	92	57.50	81	55.50	78	52.70	109	54.2
Overweight	25–29.99	9	8.30	19	13.60	34	24.30	41	25.60	44	30.10	51	34.50	57	28.4
	30–39.99	0	0.00	2	1.40	6	4.30	20	12.50	15	10.30	12	8.10	26	12.9
	≥ 40.00	0	0.00	0	0.00	2	1.40	0	0.00	1	0.70	2	1.40	0	0.00
TOTAL		9	8.30	21	15.00	42	30.00	61	38.10	60	41.10	65	44.00	83	41.3
General total		109	100.00	140	100.00	140	100.00	160	100.00	146	100.00	148	100.00	201	100.00

Table 5

Statistic indicators of BMI by age groups in the female population

Age\Indices	Minimum	Maximum	Median	Mod	Mean	Std. Dev.	Var. Q %	N
Age 20-24	16.04	28.23	21.45	24.19	21.71	2.28	10.50	109
Age 25-29	15.85	33.33	22.13	20.06	22.19	2.88	12.98	140
Age 30-34	16.00	42.40	23.13	24.89	23.85	4.18	17.53	140
Age 35-39	17.36	36.39	22.94	21.48	24.28	4.37	18.00	160
Age 40-44	18.03	42.18	23.73	19.85	24.76	4.61	18.62	146
Age 45-49	14.39	42.26	24.06	18.67	24.77	4.44	17.92	148
Age 50-54	17.24	35.52	24.42	17.24	25.28	4.30	17.01	83
Age ≥ 55	16.30	35.00	22.52	19.45	23.96	4.66	19.45	118
Total	14.39	42.40	22.89	22.05	23.85	4.22	17.69	1044

Table 6

Quetelet index variability by age groups in the rural male series, Romania

Categories		Age 17-24		Age 25-29		Age 30-34		Age 35-39		Age 40-44		Age 45-49		Age 50-54		Age 55-59		Age >60	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Underweight	< 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	16-16 99	0	0	0	0	0	0	0	0	0	0	0	0	2	0 69	1	0 55	0	0
	17-18 49	3	1 40	3	1 02	3	0 84	3	0 81	5	1 32	2	0 51	5	1 73	3	1 66	7	5 56
Total		3	1.40	3	1.02	3	0.84	3	0.81	5	1.32	2	0.51	7	2.42	4	2.21	7	5.56
Normality	18 50-24 99	186	86 51	232	79 18	247	68 99	245	66 22	225	59 21	261	66 24	191	66 09	121	66 85	79	62 70
Overweight	25-29 99	23	10 70	54	18 43	96	26 82	105	28 38	128	33 68	106	26 90	71	24 57	45	24 86	33	26 19
	30-39 99	3	1 40	4	1 37	12	3 35	17	4 59	22	5 79	25	6 35	20	6 92	11	6 08	7	5 56
	> 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		26	12.09	58	19.80	108	30.17	122	32.97	150	39.47	131	33.25	91	31.49	56	30.94	40	31.75
General total		215	100	293	100	358	100	370	100	380	100	394	100	289	100	181	100	126	100

Table 7

Quetelet index variability by age groups in the rural female series, Romania

Categories		Age 17-24		Age 25-29		Age 30-34		Age 35-39		Age 40-44		Age 45-49		Age 50-54		Age 55-59		Age >60	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Underweight	< 16	0	0	0	0	0	0	0	0	0	0	1	0 29	0	0	0	0	0	0
	16-16 99	1	0 37	1	0 37	2	0 71	0	0	0	0	1	0 29	0	0	2	1 09	2	2 13
	17-18 49	4	1 47	9	3 32	6	2 14	4	1 31	5	1 41	1	0 29	4	1 69	3	1 63	4	4 26
Total		5	1.83	10	3.69	8	2.85	4	1.31	5	1.41	3	0.88	4	1.69	5	2.72	6	6.38
Normality	18 50-24 99	219	80 22	184	67 90	168	59 79	160	52 46	183	51 55	176	51 46	110	46 41	20	10 87	55	58 51
Overweight	25-29 99	45	16 48	67	24 72	81	28 83	105	34 43	119	33 52	112	32 75	86	36 29	127	69 02	25	26 60
	30-39 99	4	1 47	10	3 69	24	8 54	36	11 80	47	13 24	51	14 91	36	15 19	32	17 39	8	8 51
	> 40	0	0 00	0	0	0	0	0	0	1	0 28	0	0	1	0 42	0	0	0	0
Total		98	17.95	77	28.41	105	37.37	141	46.23	167	47.04	163	47.66	123	51.90	159	86.41	33	35.11
General total		322	100	271	100	281	100	305	100	355	100	342	100	237	100	184	100	94	100

Table 8

Comparison of the BMI mean indicators between the rural and urban male series

Age/Index	Rural			Urban			Mahalanobis distance	Student's t-Test	Statistical Significance
	N	Mean	Std. Dev.	N	Mean	Std. Dev.			
20-24	104	21.98	2.06	160	22.53	2.24	0.06	- 2.01	N.S.
25-29	138	22.47	2.74	204	24.17	2.57	0.41	- 5.84	p < 0.001
30-34	161	22.77	2.88	143	24.47	3.00	0.34	- 5.04	p < 0.001
35-39	202	23.34	2.93	101	24.85	3.48	0.23	- 3.97	p < 0.001
40-44	197	22.86	2.60	108	25.43	3.44	0.77	- 7.34	p < 0.001
45-49	182	23.43	2.98	137	24.65	3.07	0.16	- 3.57	p < 0.01
≥ 50	294	23.01	3.46	190	27.31	2.87	1.76	- 14.30	p < 0.001

Table 9

Comparison of the BMI mean indicators between the rural and urban female series

Age/Index	Rural			Urban			Mahalanobis distance	Student's t-Test	Statistical Significance
	N	Mean	Std. Dev.	N	Mean	Std. Dev.			
Age 20-24	108	21.71	2.28	324	21.82	2.88	0.002	- 0.36	"N"
Age 25-29	138	22.19	2.88	362	23.17	3.14	0.10	- 3.19	p < 0.01
Age 30-34	138	23.85	4.18	372	23.79	3.08	0.00	0.18	"N"
Age 35-39	157	24.28	4.37	285	24.00	3.44	0.005	0.74	"N"
Age 40-44	144	24.76	4.61	272	24.87	3.63	0.001	- 0.25	"N"
Age 45-49	146	24.77	4.44	235	25.91	3.58	0.08	- 2.75	p < 0.01
Age ≥ 50	201	24.51	4.50	158	27.62	4.54	0.47	- 6.48	p < 0.001

Table 10

Comparison of the BMI mean indicators between the rural and urban male series

Cities → ↓	Cluj	Arad	Deva	Braşov	Hunedoara	Rural
Cluj	0.00	4.664***	-2.322*	-0.098	-0.287	4.664***
Arad		0.00	-0.492	2.161*	1.909	9.018***
Deva			0.00	2.698**	2.416*	8.443***
Braşov				0.00	-0.257	7.130***
Hunedoara					0.00	7.448***
Rural						0.00

* = significant ($p < 0.05$);** = very significant ($p < 0.01$);*** = highly significant ($p < 0.001$)

Table 11

Comparison of the BMI mean indicators between the rural and urban female series

Cities → ↓	Cluj	Arad	Deva	Braşov	Sibiu	Rural
Cluj	0.000	-0.197	-1.132	-1.456	1.234	-0.613
Arad		0.000	-0.747	-0.896	1.131	-0.265
Deva			0.000	0.073	2.109*	0.637
Braşov				0.000	2.118*	0.942
Sibiu					0.000	-1.520
Rural						0.000

* = significant ($p < 0.05$).

Table 12

Comparison of the BMI variability by age groups between the rural and urban male series

Age group (years) ↓	Area	Underweight (≤ 18.49)		Normality (18.50 – 24.99)		Overweight (≥ 25.0)		Total	
		N	%	N	%	N	%	N	%
20–24	Rural	4	3.85	91	87.5	9	8.65	104	100.0
	Urban	3	1.87	135	84.38	22	13.75	160	100.0
25–29	Rural	1	0.72	114	82.61	23	16.67	138	100.0
	Urban	3	1.47	155	75.98	46	22.55	204	100.0
30–34	Rural	3	1.86	123	76.4	35	21.74	161	100.0
	Urban	1	0.70	88	61.54	54	37.76	143	100.0
35–39	Rural	5	2.48	143	70.79	54	26.73	202	100.0
	Urban	2	1.98	53	52.48	46	45.54	101	100.0
40–44	Rural	6	3.05	152	77.16	39	19.80	197	100.0
	Urban	1	0.93	58	53.70	49	45.37	108	100.0
45–49	Rural	4	2.20	129	70.88	49	26.92	182	100.0
	Urban	2	1.46	67	48.91	68	49.64	137	100.0
≥ 50	Rural	16	5.44	212	72.11	66	22.45	294	100.0
	Urban	0	0.00	69	36.32	121	63.68	190	100.0
Total	Rural	39	3.05	964	75.43	275	21.52	1278	100.0
	Urban	12	1.15	625	59.92	406	38.93	1043	100.0

Table 13

Comparison of the BMI variability by age groups between the rural and urban female series

Age group (years) ↓	Area	Underweight (≤ 18.49)		Normality (18.50 – 24.99)		Overweight (≥ 25.0)		Total	
		N	%	N	%	N	%	N	%
20–24	Rural	6	5.50	94	86.24	9	8.26	109	100.0
	Urban	25	7.72	257	79.32	42	12.96	324	100.0
25–29	Rural	12	8.57	107	76.43	21	15.00	140	100.0
	Urban	22	6.08	272	75.14	68	18.78	362	100.0
30–34	Rural	4	2.86	94	67.14	42	30.00	140	100.0
	Urban	9	2.42	273	73.39	90	24.19	372	100.0
35–39	Rural	7	4.38	92	57.50	61	38.12	160	100.0
	Urban	4	1.40	193	67.72	88	30.88	285	100.0
40–44	Rural	5	3.42	81	55.48	60	41.10	146	100.0
	Urban	4	1.47	158	58.09	110	40.44	272	100.0
45–49	Rural	5	3.38	78	52.70	65	43.92	148	100.0
	Urban	0	0.00	96	40.85	139	59.15	235	100.0
≥ 50	Rural	9	4.48	109	54.23	83	41.29	201	100.0
	Urban	1	0.63	46	29.11	111	70.25	158	100.0
Total	Rural	48	4.60	655	62.74	341	32.66	1044	100.0
	Urban	65	3.24	1295	64.49	648	32.27	2008	100.0

Table 14

Male population – Cluster 1 (Clopotiva, Densuș, Hunedoara, Nucșoara, Poiana Sibiului, Sadu)

Age\Indices	Minimum	Maximum	Median	Mode	Mean	Std. Dev.	Var. Q. %	N
Age 20–29	17.95	25.42	20.86	17.95	20.92	1.63	7.79	39
Age 30–39	17.85	26.26	22.02	17.85	22.09	2.29	10.37	54
Age 40–49	17.51	27.41	21.34	17.85	21.28	1.94	9.12	40
Age ≥ 50	16.17	38.02	21.23	16.17	21.80	3.65	16.74	47

Table 15

Male population – Cluster 2 (Ardan, Fundata, Maieru, Rebrîșoara, Sincal, Sirnea)

Age\Indices	Minimum	Maximum	Median	Mode	Mean	Std. Dev.	Var. Q. %	N
Age 20–29	17.53	36.22	22.32	20.98	22.48	2.25	10.01	128
Age 30–39	17.02	32.34	22.86	22.34	23.10	2.65	11.47	199
Age 40–49	17.87	30.99	22.75	22.64	23.29	2.68	11.51	222
Age ≥ 50	17.47	34.87	23.17	18.08	23.51	3.54	15.06	107

Table 16

Male population – Cluster 3 (Ursad)

Age\Indices	Minimum	Maximum	Median	Mode	Mean	Std Dev	Var Q %	N
Age 20–29	18 04	27 40	21 78	18 04	21 72	3 80	17 50	6
Age 30–39	19 16	29 22	21 74	19 16	22 54	3 41	15 13	13
Age 40–49	18 39	31 49	23 99	18 39	23 06	4 09	17 74	12
Age ≥ 50	17 76	30 39	24 63	17 76	23 60	3 50	14 83	17

Table 17

Male population – Cluster 4 (Dumitra, Lunca Largă, Gâlda de Jos, Vîdolm)

Age\Indices	Minimum	Maximum	Median	Mode	Mean	Std Dev	Var Q %	N
Age 20–29	18 22	30 13	21 08	18 22	22 10	2 61	11 81	29
Age 30–39	18 02	33 36	22 37	18 02	23 34	3 50	14 99	54
Age 40–49	17 91	32 51	23 08	17 91	23 40	3 02	12 91	60
Age ≥ 50	18 26	33 18	23 46	18 26	23 42	3 40	14 52	49

Table 18

Female population – Cluster 1 (Ardan, Densuș, Hunedoara, Maieru, Nucșoara, Poiana Sibiului, Rebrîșoara)

Age\Indices	Minimum	Maximum	Median	Mode	Mean	Std Dev	Var Q %	N
Age 20–29	16 38	31 31	21 81	24 19	22 14	2 31	10 43	124
Age 30–39	16 82	39 36	22 94	20 30	23 63	3 89	16 46	121
Age 40–49	14 39	42 26	24 12	18 67	24 78	4 76	19 21	122
Age ≥ 50	17 31	34 63	22 19	19 45	22 75	3 58	15 74	45

Table 19

Female population – Cluster 2 (Ursad)

Age\Indices	Minimum	Maximum	Median	Mode	Mean	Std Dev	Var Q %	N
Age 20–29	16 04	27 69	19 39	16 04	21 11	3 72	17 62	13
Age 30–39	19 65	34 55	24 43	19 65	25 33	4 46	17 61	14
Age 40–49	18 25	34 15	23 99	18 25	24 99	4 53	18 13	19
Age ≥ 50	19 50	33 06	23 66	19 50	24 73	3 48	14 07	20

Table 20

Female population – Cluster 3 (Sirnea, Șimon, Șincai)

Age\Indices	Minimum	Maximum	Median	Mode	Mean	Std Dev	Var Q %	N
Age 20–29	16 53	28 18	22 08	16 53	21 37	2 55	11 93	34
Age 30–39	18 28	42 40	23 10	18 28	24 34	4 66	19 15	76
Age 40–49	18 08	37 56	23 28	18 08	24 50	4 29	17 51	79
Age ≥ 50	17 76	35 00	22 56	20 65	24 35	4 78	19 63	45

Table 21

Female population – Cluster 4 (Dumitra, Galda de Jos, Lunca Largă)

Age\Indices	Minimum	Maximum	Median	Mode	Mean	Std. Dev.	Var. Q. %	N
Age 20–29	17.31	27.19	22.45	17.31	22.33	2.59	11.60	36
Age 30–39	16.00	40.89	24.85	16.00	25.02	5.07	20.26	48
Age 40–49	16.71	42.18	24.69	16.71	25.22	4.65	18.44	42
Age ≥ 50	16.30	35.52	26.83	16.30	26.78	4.65	17.26	43

VARIABILITY IN BODY DIMENSIONS BY CLUSTERS IN THE TRANSYLVANIAN RURAL POPULATION

Table 22

Synthetic averages of the clusters in the male Romanian population

Clusters variable	1		2		3		4	
	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$
Height	1570	1660.18	1754	1680.17	513	1697.64	1536	1682.29
Sitting height	1570	873.96	1754	887.64	513	895.59	1536	881.38
Biacromial breadth	1570	388.33	1754	384.12	513	388.22	1536	379.22
Biiliac breadth	1570	275.13	1754	280.24	513	299.97	1536	284.11
Length of inferior limb	1570	789.91	1754	799.51	513	823.91	1536	804.04
Trunk depth at	1570	188.51	1754	206.11	513	220.73	1536	209.51
Thorax perimeter	1570	889.74	1754	925.10	513	958.98	1536	938.42
Waist perimeter	1570	749.77	1754	824.38	513	897.61	1536	877.47
Weight	1570	58.97	1754	66.72	513	74.10	1536	70.06

1 = Sibiu (694), Hunedoara – Pădureni (436), Hunedoara – Țara Hațegului (440);

2 = Maramureș (260), Bistrița Năsăud (426), Mureș (248), Brașov (820);

3 = Arad (20), Bihor (493);

4 = Satu Mare (147), Sălaj (305), Cluj (446), Alba (638).

From Table 22, representing the Romanian male population from the rural area, one can observe that the distribution of the Romanian males by clusters reproduces almost entirely the body constitution aspects of the entire male population studied in Transylvania; thus, three categories of values can be discerned:

- average values for: height, sitting height, length of inferior limb and biacromial breadth;
- high and low values for biiliac breadth and thorax perimeter;
- very high and very low values for trunk depth at xyphoid point and waist perimeter.

Table 23

Synthetic averages of the clusters in the female Romanian population

Clusters variable	1		2		3		4	
	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$
Height	1804	1554 62	942	1562 82	1481	1562 23	927	1599 02
Sitting height	1804	830 75	942	837 63	1481	836 68	927	841 08
Biacromial breadth	1804	357 06	942	345 45	1481	353 58	927	364 17
Biiliac breadth	1804	284 54	942	297 54	1481	282 05	927	296 81
Length of inferior limb	1804	723 52	942	725 62	1481	741 57	927	757 11
Trunk depth at xyphoid point	1804	176 48	942	190 14	1481	189 34	927	199 02
Thorax perimeter	1804	831 43	942	898 97	1481	868 21	927	920 42
Waist perimeter	1804	707 67	942	876.07	1481	810 73	927	825 80
Weight	1804	55 26	942	64 60	1481	59 27	927	68 48

1 = Sibiu (575), Hunedoara – Pădureni (503), Hunedoara – Țara Hațegului (383), Bistrița Năsăud (343),

2 = Bihor (567), Sălaj (375),

3 = Brașov (856), Mureș (208), Maramureș (257), Satu Mare (138), Arad (22),

4 = Alba (531), Cluj (396)

The data from Table 23, representing the Romanian female population from the rural area, show that the distribution of the Romanian females by clusters also reproduces the body constitution aspects of the entire female population studied in Transylvania, with a higher variability regarding trunk depth at xyphoid point and especially waist perimeter; three categories of values can be discerned:

- average values for: height, sitting height and biacromial breadth;
- high and low values for length of inferior limb, biiliac breadth and thorax perimeter;
- very high and very low values for trunk depth at xyphoid point and waist perimeter.

As regards other nationalities, the synthetic averages of the established clusters are presented in Tables 24 and 25.

Table 25

Synthetic averages of the clusters in the female population – other nationalities

Clusters variable	1		2		3		4	
	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$
Height	205	1577.87	0	–	147	1582.49	53	1522.29
Sitting height	205	831.04	0	–	147	848.84	53	821.06
Biacromial breadth	205	364.67	0	–	147	358.01	53	341.56
Biiliac breadth	205	287.02	0	–	147	292.68	53	282.23
Length of inferior	205	745.93	0	–	147	733.81	53	701.23
Trunk depth at	205	201.71	0	–	147	190.29	53	187.33
Thorax perimeter	205	915.24	0	–	147	899.21	53	837.17
Waist perimeter	205	823.93	0	–	147	799.64	53	749.76
Weight	205	67.07	0	–	147	65.61	53	57.24

1 = Saxons (205);

2 = Szeklers (0);

3 = Hungarians (147);

4 = Roma people (53).

The synthetic averages of the clusters in the female population of other nationalities show a generally similar variability with the one recorded in the Transylvanian female population for all the analyzed body mass variables (the recorded values can be divided into “average” and “low and high” categories); an exception is to be found in the high average values recorded for trunk depth at xiphoid point and partly for the thorax and waist perimeters.

The mean values in the Hungarian female population are for all the body variables slightly above the average threshold, a fact that indicates the uniformity of this population category as regards body dimensions.

In the Roma people, the mean values of all the variables are significantly lower, except for the trunk depth at xiphoid point for which values of the average threshold were recorded.

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OBESITY AND BODY IMAGE AMONG HIGH SCHOOL PUPILS

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Considering the increasing worldwide problem of negative body image as a result of a misled way of addressing obesity, we investigated this issue among adolescents, who, during puberty, undergo a series of important physical changes generating a highly dynamic perception of their body, and who are particularly vulnerable to messages sent and standards of appearance and attractiveness set for them by the family, friends, school, doctors, and mass media. Since the excessive concern for body mass and the lack of accurate information could lead to restrictive dietaries and other unhealthy methods of weight control and also to serious eating or mental disorders, we investigated through a questionnaire their body mass concerns, possible changes in dietary and regular exercise done in order to shape their body, their opinion towards obesity and self-evaluation of health status. Based on an evaluation of their body mass, we analysed the answers by comparing different body mass classes.

The research was conducted between 2004 and 2006. The sample was constituted by 1613 teenagers (589 boys and 1024 girls) coming from several Bucharest high schools. We measured their weight and height and we used the American scale of the BMI classification for children. The questionnaire was complex, but, according to the topic of this paper, we selected only a few relevant items.

As we expected, all the teenagers, irrespective of age, sex or body mass, acknowledge their appearance concerns; maintaining a certain weight constitutes an important component of this preoccupation with self-image. The methods of weight control are different for girls and boys: while most girls resort to dietaries, boys prefer to exercise more outside of school. Since body image is highly subjective and distorted, as regards regular self-control of weight, knowledge of the optimal weight according to height, and use of the food guides during diets, we found similar distributions by weight category: low percentages for underweight subjects and near ones for normal and overweight teens. The aesthetic implications of obesity are more clear and important for the interviewed subjects than the medical ones; most of them consider obesity as a disease and accurately report their weight, but perceive themselves to be healthy, irrespective of their weight class.

INTRODUCTION

While, on medical ground, the specter of obesity gets larger and clearer, we are forced to admit that the price paid for obesity is reflected, not only in

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shortening of life expectancy, but also in a substantial adverse change of its quality. This price could be quantified in direct costs of hospitalization care, physician services, and medication to treat obesity and its complication or indirect costs related to productivity and connected income, but what constitutes for the moment our preoccupation is its conversion into psychological distress. A perverse outcome of our medical concerns is that a mislead way of addressing obesity perpetuates stereotypes and cultivates further prejudice. Somehow, while fighting the diseases linked to obesity, we must reduce intolerance towards this condition. Obesity is not only a disease or – as Bruche appropriately said – it does not have the dignity of other diseases (1). It is a social stigma, a mark of abnormality in a culture conceding that the human body comes in all shapes and sizes, but prizing ultra thin, skinny models, with a BMI below 18; a society that considers weight to be within personal control and discriminates against obese individuals, depicted as unattractive, unpopular, unsuccessful, and blamed for being lazy, incompetent, lacking in self-discipline, self-indulgent and emotional unhealthful (2 & 3). All over the world, the statistics links obesity with a poor or negative body image, a low self-esteem, with immediate and sometimes devastating impact upon human life, personal outlook, wellness and productivity (college acceptance, financial aid in paying for college, employment opportunities, job earnings, rental availabilities, and opportunities for marriage). Even this varies across different ethnic perspectives, it is well documented, at least for Caucasian people (4).

Body image is a subjective, dynamic representation of one's physical appearance, influenced not only by sensations, perceptions and emotions, but also by the reactions of others, their evaluations, and the whole social and cultural nowadays globalized environment, in which the person lives. The irony makes the problem of negative body image to spread, crossing physical, cultural, gender and age barriers, precisely under the existing circumstances, when we are inundated by society (psychiatrists and psychologists, nutritionists, plastic surgical doctors and other medical practitioners, pharmacological companies, etc.) with solutions of overcoming sufferance. The new scientific and technologic advancements throw us forever into the vicious circle of possible self-changes precisely because societal reinforcement of body image concerns aids in maintenance of body dissatisfaction and the elusive search for the perfect body (5).

There is no surprise that messages and images regarding obesity are contradictory, if we think about the two large economic markets within the media: the one related with food industry, advertising food products (most often 'junk food', namely high caloric, low-nutrient drinks and snacks) and one that comes with diet industry and encourage women to lose weight. And, if it is true that the press 'may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think *about*', then, the media coverage of weight topic must be considered (2).

As regards our topic of discussion, the excessive concern for body mass and the lack of accurate information could lead to restrictive dietaries and other unhealthy methods of weight control (vomiting, laxatives, diet pills, diuretics, and cigarette smoking) and also to serious eating or mental disorders (such as anorexia, bulimia, binge eating disorder, and body dysmorphic disorder). While the complex relation between obesity and eating disorders, and the tension between the two professional communities and their different theoretical models and clinical approaches is still debated, an important observation could be retained: the idea according to which a negative view of their weight, stigma and discrimination experienced may actually have the positive effect of motivating obese people to lose weight is wrong and leads only to more negative psychological outcomes at the same time as unrealistic weight-loss goals end in failure (6).

With respect to the body image, adolescence is a particular critical age. During puberty, the teenager undergoes, earlier or later, a series of important physical changes that lead to a highly dynamic perception of his/her body. Family, friends, school, doctors, mass media, all of them send messages and set standards of appearance and attractiveness and reward or sanction him/her as the case may be. A healthy body image, and ultimately the psychological health, depends on the way the teenager will succeed, helped or not, to manage these influences and the difference between the way he/she describes himself/herself and the ideal he/she sets for himself/herself.

In this context, our study intended to probe their level of concern and knowledge about body mass issue, an indispensable objective for starting any strategy of promoting healthy body image and counteracting obesity, no matter what form will embrace this strategy: soft paternalism, hard paternalism or maternalism (7).

MATERIAL AND METHOD

Our research was undertaken in the capital, the study sample being composed by 589 boys and 1024 girls coming from a few Bucharest high schools. Evaluation of their body mass was made using the American scale of the BMI classification for children (Underweight under the 5th percentile; Risk for underweight between 5th and 15th percentile; Normal/healthy weight between 15th & 85th percentile; Overweight between the 85th & 95th percentiles; Obesity at or over the 95th percentile) (8). The results obtained could be observed in Tables 1 and 2. Subsequently, the subjects have answered to a questionnaire about their body mass concerns, possible changes in dietary and regular exercise done in order to shape their body, their opinion towards obesity and self-evaluation of health status in these circumstances.

Table 1

Distribution of BMI in high school girls

	15 years	16 years	17 years	18 years
Underweight	5.22	5.48	4.96	4.76
Risk for underweight	9.70	9.59	9.93	9.52
Normal weight	70.15	69.86	69.50	70.24
Overweight	9.70	9.59	9.93	10.12
Obesity	5.22	5.48	5.67	5.36

Table 2

Distribution of BMI in high school boys

	15 years	16 years	17 years	18 years
Underweight	4.82	4.74	5.07	4.87
Risk for underweight	10.09	9.85	10.14	10.18
Normal weight	69.30	70.07	69.59	69.47
Overweight	10.53	9.85	10.14	10.18
Obesity	5.26	5.47	5.07	5.31

RESULTS AND DISCUSSION

Almost all the teenagers, irrespective of age or sex, acknowledge their appearance concerns; age-related evolution of this preoccupation does not reveal high variations, only a small decrease, nearly insignificant, in the twelfth grade pupils, which may be ascribed to the increasing concern for the near exams (High School Graduation Exam and College or University Admission Exam): from 97.81% in the ninth grade to 96.02% in the twelfth grade, for the female series and from 94.78% in the ninth grade to 94.64% in the twelfth grade, for the male series (Figure 1). Analyzing variability of these appearance concerns by subjects' body mass, we found a similar distribution, with almost insignificant variations between underweight, normal weight and overweight categories, for both sexes (Figure2).

As we expected, maintaining a certain weight constitutes an important component of this preoccupation with self-image: a large proportion of the adolescents regularly check their weight (girls in a higher proportion). Over time, we recorded a tendency of slow decrease in the girls' case (from 53.51% in the ninth grade to 50.00% in the twelfth grade) and a tendency of slow increase for the boys (from 35.82% in the ninth grade to 40.48% in the twelfth grade) (Figure 3). As regards distribution by subjects' body mass, the highest percentage is recorded

among normal weight girls (49.65%) and overweight boys (37.93%). Explanation for this apparently paradoxical situation must be sought in the gap between the subjective perception and the objective reality (which also clarifies the otherwise unjustified diets of underweight or normal weight persons), and in the different types of reactions to an unsatisfactory reality that fails to correspond to the ideal: dispirit, anxiety, denial or distressful/agonizing preoccupation (all likely recognizable in overweight persons).

Lower percentages (10–15% less) were found among underweight teens or teens at risk of being underweight: 38.56% in girls and 26.44% in boys, numbers that confirm that gaining weight is a less frequent preoccupation (Figure 4). What entitles us to consider the above explanations valid hypotheses is the parallel distribution by weight category of other three items, regarding knowledge of the optimal weight according to height, the resort to various dietaries and consulting food guides during diets. Let us consider them in details.

Knowledge of the optimal weight according to height presents an upward tendency over time, corresponding without doubt with the general increase of information level (from 55.97% in the ninth grade to 68.45% in the twelfth grade in the boys' case and from 70.61% in the ninth grade to 82.30% in the twelfth grade for the girls). Distributions according to body mass highlight lower percentages among underweight subjects and higher percentages among overweight subjects, in both sexes (Figures 5 and 6).

During puberty, both sexes resort to dietaries, girls in a larger proportion (the percentage is double in the ninth grade and threefold in the twelfth). Again, the highest percentages could be found in overweight and obese classes, and are considerable higher than those corresponding to underweight, risk of underweight or normal weight categories, except for the normal weight girls who, in a pretty high percentage (35.34%), reported having resorted to diets, although, clearly for us, they were not in need of them. This situation, similar to that of frequent weight, may be easily explained through the existence of a deformed body image (Figures 7 and 8).

Food guides are orientation tools to which both sexes resort, the girls having, of course, a considerable ascendancy over the boys (41.67% in comparison with 22.39% in the ninth grade and 32.74% in comparison with 11.31% in the twelfth grade). Percentages distribution by age groups reproduces the two previously presented situations: lower percentages among underweight subjects and higher among overweight ones, in girls and boys as well. And again, we find near percentages for normal weight girls and those overweight (35.90% and 44.30%) (Figures 9 and 10).

If the preoccupation with achieving or maintaining an ideal weight among girls is almost invariably similar with the resort to dietaries – hence the percentage

differences recorded for the previous items between girls and boy – among boys we can observe a higher frequency of extracurricular physical activity, even if slowly decreasing over time (50.00% in comparison with 16.67% in the ninth grade and 47.62% in comparison with 20.35% in the twelfth grade). However, among overweight or obese boys in comparison with normal or underweight ones, exercise takes an inferior place. This fact may be explained through the difficulty of these persons of enrolling in collective physical activities, because of the poor results in sports games and relatively high body exposure involved/presumed in exercise – both might be having as result the deriding of the overweight subject. Variations are not very big among girls (Figures 11 and 12).

If aesthetic implications of obesity are above any doubt for both sexes, the medical ones remain unclear and insufficiently acknowledged. The number of subjects who consider obesity a disease increases as they are aging, corresponding to the previously mentioned general increase of information level and reaches significant percentages (93.36% among girls and 84.52% among boys). The distribution according to pupils body mass indicates an almost unanimous agreement of girls' opinions (90.20% of the underweight or at risk of being underweight, 89.34% of the normal weight ones and 91.14% of those overweight and obese) and a slight disagreement among boys, more clear in overweight subjects than in normal or underweight ones (Figures 13 and 14).

Paradoxically, most of the subjects consider themselves healthy, irrespective of their weight problems (Figures 15 and 16). However, a comparison with similar studies across the world – in which participants accurately reported themselves as overweight, but perceived themselves to be as healthy as participants in the normal weight group – clearly indicates that Caucasian people generally tend to associate obesity with personal consequences, rather than with medical ones (4).

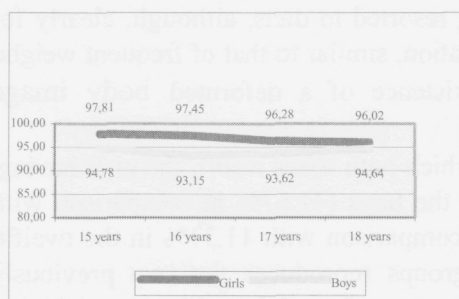


Fig. 1 – Teens' preoccupation with self-image, according to their age.

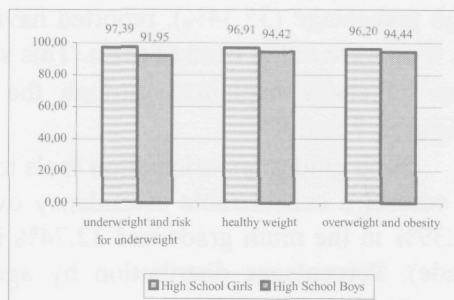


Fig. 2 – Teens' preoccupation with self-image, according to their body weight class.

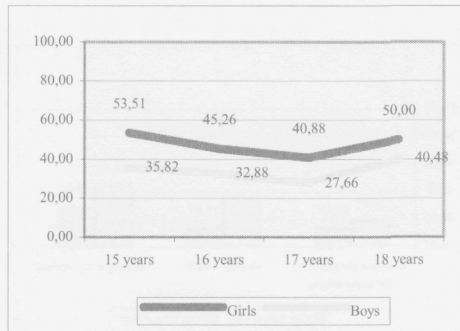


Fig. 3 – Regular self control of weight according to children's age.

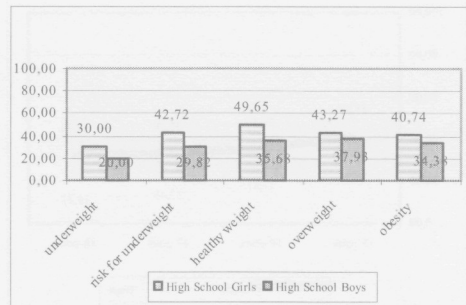


Fig. 4 – Regular self-control of weight according to children's body weight class.

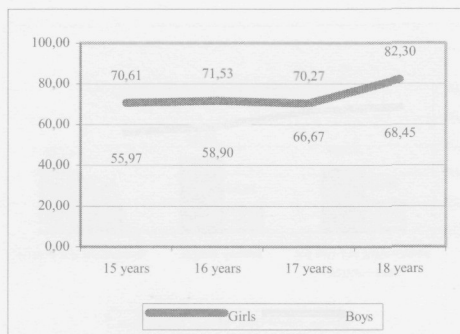


Fig. 5 – Knowledge of ideal weight for their stature among children, according to their age.

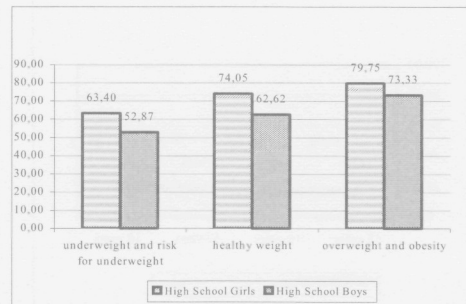


Fig. 6 – Knowledge of ideal weight for their stature among children, according to their body weight class.

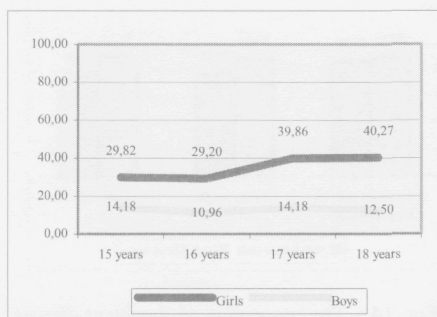


Fig. 7 – Frequency of resorting to diet according to subjects' age.

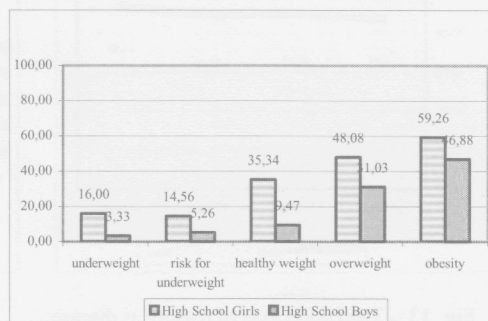


Fig. 8 – Frequency of resorting to diet according to subjects' body weight class.

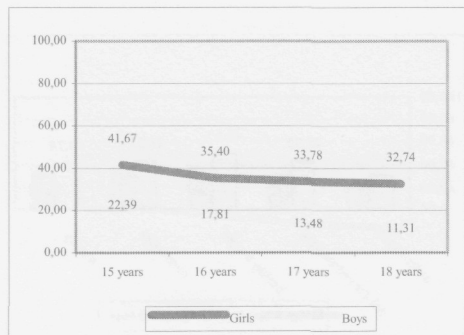


Fig. 9 – Frequency of consulting food guides during diets according to subjects' age.

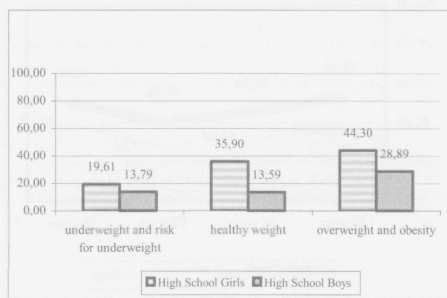


Fig. 10 – Frequency of consulting food guides during diets according to subjects' weight class.

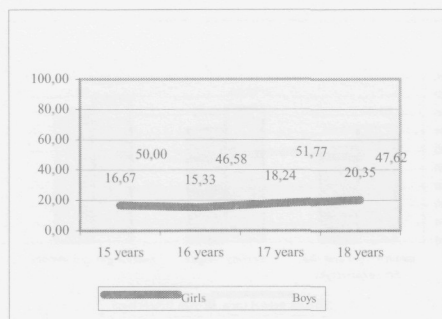


Fig. 11 – Exercise outside of school among children, according to their age.

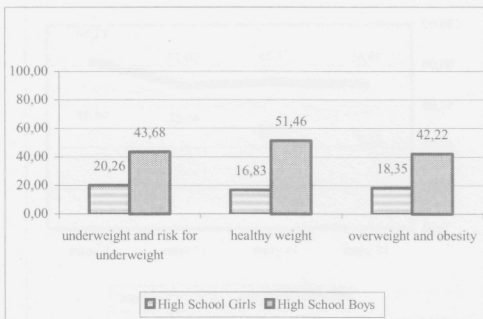


Fig. 12 – Exercise outside of school among children, according to their body weight class.

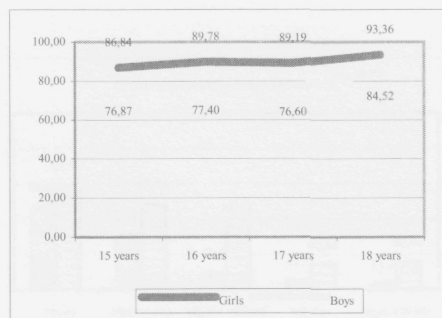


Fig. 13 – The conception of obesity as disease among children, according to their age.

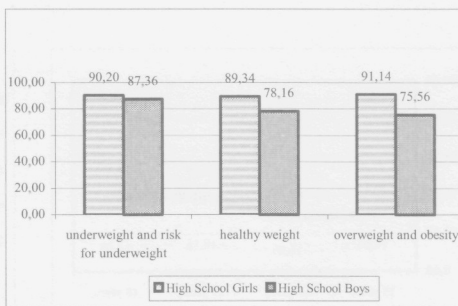


Fig. 14 – The conception of obesity as disease among children, according to their body weight class.

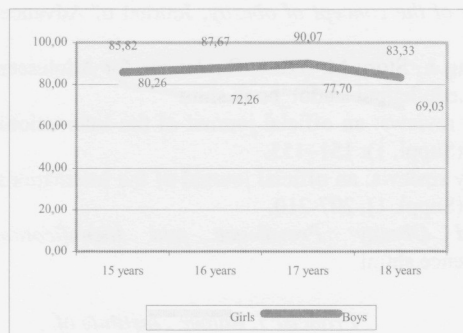


Fig. 15 – Self-perception as a healthy person according to subjects' age.

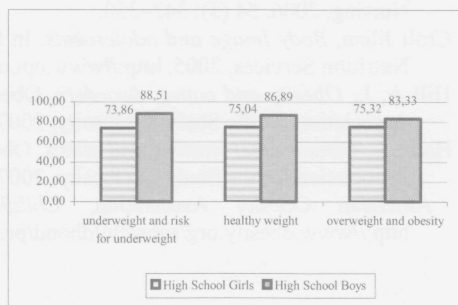


Fig. 16 – Self-perception as a healthy person according to subjects' body weight class.

CONCLUSIONS

All the teenagers, irrespective of age, sex or body mass acknowledge their appearance concerns; maintaining a certain weight constitutes an important component of this preoccupation with self-image.

Since body image is highly subjective and distorted, regarding regular self-control of weight, knowledge of the optimal weight according to height, and use of the food guides during diets, we found similar distributions by weight category: low percentages for underweight subjects and near for normal and overweight teens.

The resort to various dietaries is considerably higher in overweight and obese adolescents, for girls and boys as well, and in the girls' series this practice increased over time, while among boys we can observe a higher frequency of extracurricular physical activity, even if it is lower in overweight or obese persons and slowly decreases over time.

The aesthetic implications of obesity are more clear and important for the interviewed subjects than the medical ones, most of them considering obesity as a disease and accurately reported their weight, but perceived themselves to be healthy irrespective of their weight class.

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NUTRITIONAL BEHAVIOR AND THE RISK FOR OBESITY AMONG CHILDREN AND TEENAGERS

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The increasing prevalence of obesity makes its prevention a crucial objective, children and teenagers becoming the prior target group for action.

Since obese adolescents tend to remain obese in adulthood, and because obesity during adolescence is always related with the increased risk for cardiovascular and metabolic diseases, the early intervention orientated toward weight loss is a relevant approach, even if its efficiency and long-term extension are not fully demonstrated.

The efficient management of weight during childhood and adolescence is the key element of a durable prevention of obesity.

Our work is focused on the analysis of some aspects of nutritional behavior, food practices and nutrition knowledge among children and teens aged 11–18 years, with risk for obesity.

A relation between some unhealthy food practices and the anthropological diagnosis of risk for obesity was found. We consider necessary to widen the investigation area to a more numerous population of children, because these correlations could be verified only on large series of subjects, which assure the national representativeness.

MATERIAL AND METHOD

The study sample is composed of 3238 children and teenagers from different Bucharest school units, 1378 boys and 1860 girls, aged 11–18 years.

Their body mass was evaluated using body mass index (Quetelet index) and the following scale of BMI percentiles: Underweight under the 5th percentile; Normal weight between 15th & 85th percentile; Risk for overweight between the 85th & 95th percentiles; Overweight at or over the 95th percentile.

A questionnaire regarding the nutritional behavior and life style was further applied, in order to catch the unhealthy behaviors of children and teens and their correlation with the prevalence of malnutrition and obesity.

DISCUSSIONS

1. Analysis of age and sex variability of BMI highlighted the following results:

- Prevalence of malnutrition or underweight in the male series is 5.44% of children and teenagers, varying between 5.07% at the age of 11 years and 5.96% at the age of 18 years;
- Prevalence of malnutrition in the female series is 5.32%, varying between 5.07% at the age of 17 years and 5.75% at the age of 18 years;
- Prevalence of risk for obesity in the male series is 9.94%, varying between 9.52% at the age of 18 years and 10.65% at the age of 13 years;
- Prevalence of risk for obesity in the female series is 9.84%, varying between 9.59% at the age of 11 years and 10.22% at the age of 16 years;
- Prevalence of obesity in the male series is 5.08%, varying between 4.63% at the age of 13 years and 5.47% at the age of 16 years;
- Prevalence of obesity in the female series is 5.16%, varying between 4.74% at the age of 16 years and 5.96% at the age of 15 years (Tables 1 and 2).

We conclude that the population of children and teenagers is characterized by overweight (potentially pathological) in a ratio of 15.02% in the male series and 15.00% in the female series (Figures 1 and 2).

2. Analysis of nutritional behavior and life style highlighted a series of aspects that reveal us unhealthy practices and deficient knowledge of healthy nutrition.

The nutritional problems of teenagers are the result of food shortage determined by physiological factors (growth imposes additional food requirements), socioeconomic factors that influence food quantity and quality, psychosocial factors that have a remarkable importance, appearance concerns, nutrition patterns influenced by food habits, but also the commercial environment, especially mass-media.

a). *Practices of unhealthy nutritional behaviors*

As a first observation, Cornelius (1991) claimed that obese subjects tend to skip **breakfast** and this tendency becomes more frequent during childhood and continue to increase during adolescence. Eating breakfast is an efficient way of reducing fat consumption and of minimizing snacking that became meanwhile a vice.

In the male series aged 11–14 years, 14.29% of obese children and 10.26% of those with risk for overweight constantly skip breakfast. In the female series aged 11–14 years, 20.45 of the overweight girls and 18.07% of those with risk for

overweight do not have this habit (this means that almost one quarter of boys and one-third of girls have this unhealthy nutritional behavior). As regards the content of breakfast in male series, 52% of overweight boys and 37% of those with risk for obesity eat meat and dairy products; meat and dairy products are consumed, in differentiated rations, mainly by overweight girls (45%).

Between 15–18 years of age, both girls and boys maintain similar rations to children aged 11 to 14 years, that is to say one quarter of boys and one-third of girls skip breakfast. As concerns the content of breakfast, the overweight boys and those with risk for overweight eat meat products and eggs in a higher proportion (30%), while girls eat dairy products (32.18%). Fruits consumption at breakfast barely reaches 4.76% in the male series and 9.09% in the female series.

Surprisingly, snacking characterize only 2.38% of boys and 2.27% of girls, percentages that are stable between 11–18 years of age. We considered food package as an option of a late breakfast. Between 11–14 years of age, in the male series, almost 30.95% of obese subjects and 44.87% of those with risk for obesity have a home-prepared food package, while, in the female series, almost 38.64% of obese subjects and 56.63% of those with risk for obesity display the same habit. As for the series aged 14 to 18, in the male series, only 18.75% of obese subjects and 24.14% of those overweight are characterized by this habit; in the female series, 27.78% of obese subjects and 19.23% of those overweight have a home-prepared food package. By contrary, snacking characterizes 65.63% of obese boys and 63.79% of overweight ones, while, in the girls' case, this consumption exceeds 70% of overweight and obese subjects.

If the practices regarding breakfast show us a defective behavior, as concerns knowledge, children and teenagers, irrespective of age and sex, acknowledge in a proportion above 90% the benefic effects of breakfast on health. The vast majority of children and teenagers consider snacks unhealthy.

As for **lunch**, a pretty high proportion of overweight and obese boys (16.67% and 14.29%), and of overweight and obese girls (16.87% and 11.36%) skip lunch. This is a practice as damaging as skipping breakfast. This is truly a point where the school schedule could interfere: the outcomes depend on whether they study in the morning or in the afternoon. The content of lunch is invariably home-prepared food for girls and boys as well, irrespective of age and sex.

In the male series, **dinner** is absent for 14.29% of obese subjects and 7.69% of those with risk for overweight; the correspondent numbers for the female series are 15.91% and 15.66%. Dinner is constituted mainly by home-prepared food both in girls and boys (40 to 50 percent).

Snacking between lunch and dinner does not characterize 20.45% of obese boys and 24.10% of those with risk for obesity; in the female series, 40.48% of obese subjects and 30.77% of those with risk for obesity do not have the habit of

snacking between meals. Fruits constitute snacks between meals for 43.18% of obese girls and 31.33% of those with risk for obesity; they are considered an option by 19.05% of obese boys and 21.79% of those with risk for obesity.

Another damaging habit is eating during night, noticed in a relatively low proportion in obese boys (2.38%) and those with risk for obesity (16.67), while, in the girls' series, numbers are 4.55% and 9.64%.

b). *Access to necessary food* for the growth and development period of children and teenagers, which is a transition period at biological, psychological, social and cultural level, represents a problem for the family and society as well. Concerning this issue, we analysed the items regarding their food desires, namely what children would like to consume more, and more often?

Overweight boys would like to eat more often fast food (41.92%), meat products and eggs (39.12%), and sweets (21.45%). Meat products and eggs occupy top positions among favorite food, followed by crisps (32.87%) and fast food (31.15%). Worth mentioning is that a pretty high ratio of boys (38.47%) does not have any food preference and 57.76% of boys would not eat anything more often. Regarding knowledge, 15.63% of obese boys and 6.90% of overweight ones do not consider that food habits could influence the health status.

Girls would like to consume more fruits and vegetables (44.20%), and fast food (35.75%). Meat products and eggs consumption is in top of their preferences (53.81%), followed by crisps (34.79%) and dairy products (33.90%).

3. **Food vices** or excessive food preferences, potentially health risks generators.

Sweets consumption – in excess, it becomes damaging to health. Between 15-18 years of age, sweets consumption may be found in 70% of girls suffering of malnutrition, in 54.84% of girls with a healthy weight, in 48% of overweight girls and 64.81% of obese ones. In the male series, the prevalence of excessive sweets consumption is significantly lower: 50% in subjects suffering of malnutrition, 50.97% in subjects with a healthy weight, 43.10% in overweight boys and 37.50% in obese ones.

Fatty food consumption reaches in the female series a prevalence of 12% of girls suffering of malnutrition, 14.59% of girls with a healthy weight, 8.65 % of overweight girls and 16.67% of obese ones. In the male series, 20% of subjects suffering of malnutrition, 20.39% of subjects with a healthy weight, 24.14% of overweight boys and 31.25% of obese ones acknowledge the preference for fatty food.

Frequent consumption of pork was reported in 50% of girls suffering of malnutrition, 36.47% of girls with a healthy weight, 37.50 % of overweight girls and 42.59% of obese ones. As for the boys, it characterizes 53.33% of those

diagnosed with malnutrition, 53.88% of those with a healthy weight, 50% of overweight subjects and 46.88% of obese ones.

The analysis of the questionnaire also revealed what is not frequently consumed (because of the prohibitive costs), and here we will particularize (without any further comment on the implications of poor consumption): fish, chicken, fruits containing lots of vitamins, vegetables (others than potatoes and beans).

We noticed that children and teenagers are not lacking knowledge regarding what they should eat, what is healthy or damaging to health.

At the same time, they do not possess a “culture” of preserving health and we will explain this aspect through some imperative personal actions such as: knowledge of the healthy weight corresponding to their age and height; regular self-check of weight; knowledge of caloric value of food; knowledge of the bad influence of irregular meals; turning to a doctor for assistance when a diet is necessary; acknowledge obesity as a risk factor of cardiovascular and metabolic diseases; acknowledge parental obesity as a high risk of developing obesity in children.

As concerns pathological history, 45% of overweight girls and 36% of overweight boys have overweight parents; in addition, 50% of overweight girls and 57.76% of overweight boys reported cardiovascular diseases in their families.

Let us not forget the role of physical exercise in shaping the body. Here, we must consider the body image, cultural aspects of body representation, which explain attitudes towards obesity and the related practices.

CONCLUSIONS

This entails applying some nutrition health promotion strategies in children and teenagers, to fight against diseases that have been linked to unhealthy nutrition behaviours.

A national survey of nutritional health status of children and adolescents is necessary, to cover large territories, such as historical provinces or geographical areas.

Genetical factors influence this health status in a higher proportion, but mesological factors – as social, cultural or psychological ones – are also involved.

In order to avoid those diseases for which obesity represents a major risk factor, we must break the chain of determining factors during a period of life, when this is still possible.

In children and teenagers, the highest prevalence, almost 10% of population, is placed in the category of risk for obesity (between the 85th & 95th percentiles), while obesity (BMI at or over the 95th percentile) has a prevalence of almost 5%.

In this period of life, we can still do something to get in the way of epidemic obesity in adult population.

Table 1

Variability of BMI percentiles among male children and adolescents, in the year 2004

PERCENTILES		11 years		12 years		13 years		14 years		15 years		16 years		17 years		18 years		Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
<5*	Underweight	8	5.07	9	5.47	12	5.55	13	5.39	7	5.22	8	5.47	8	5.68	10	5.96	75	5.44
5* – 85*	Normal weight	126	79.75	139	79.88	171	79.16	192	79.67	107	79.85	116	79.45	112	79.43	133	79.16	1096	79.54
85* – 95*	Risk for obesity	16	10.13	17	9.77	23	10.65	24	9.96	13	9.70	14	9.59	14	9.93	16	9.52	137	9.94
>95*	Obesity	8	5.06	9	5.17	10	4.63	12	4.98	7	5.23	8	5.47	7	4.97	9	5.36	70	5.08
TOTAL		158	100	174	100	216	100	241	100	134	100	146	100	141	100	168	100	1378	100

Table 2

Variability of BMI percentiles among female children and adolescents, in the year 2004

PERCENTILES		11 years		12 years		13 years		14 years		15 years		16 years		17 years		18 years		Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
<5*	Underweight	8	5.47	10	5.18	12	5.34	15	5.52	12	5.26	14	5.10	15	5.07	13	5.75	99	5.32
5* – 85*	Normal weight	116	79.45	154	79.79	179	79.56	216	79.52	182	79.83	219	79.93	237	80.08	179	79.20	1482	79.68
85* – 95*	Risk for obesity	14	9.59	19	9.84	22	9.78	27	9.93	22	9.65	28	10.22	29	9.80	22	9.73	183	9.84
>95*	Obesity	8	5.47	10	5.18	12	5.33	14	5.15	12	5.96	13	4.74	15	5.07	12	5.31	96	5.16
TOTAL		146	100	193	100	225	100	272	100	228	100	274	100	296	100	226	100	1860	100

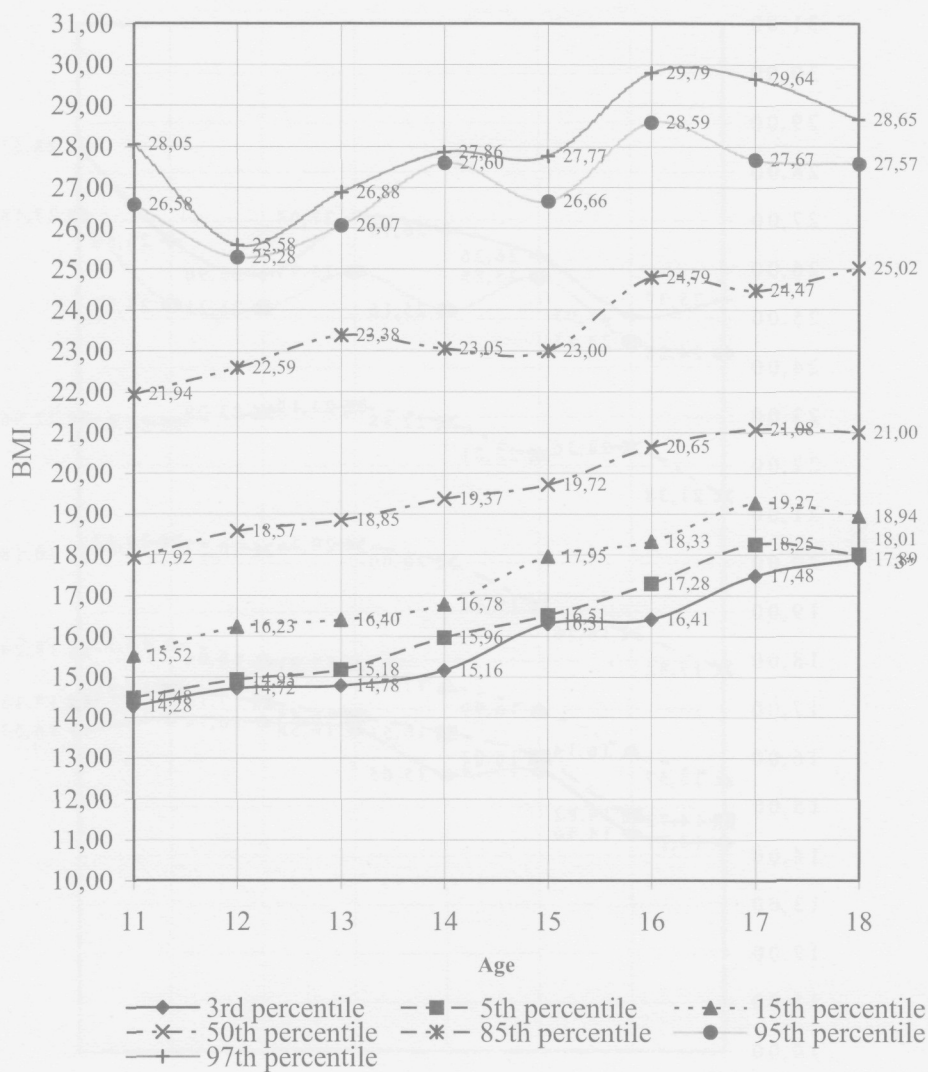


Fig. 1. – Body mass index-for-age percentiles in boys, year 2004.

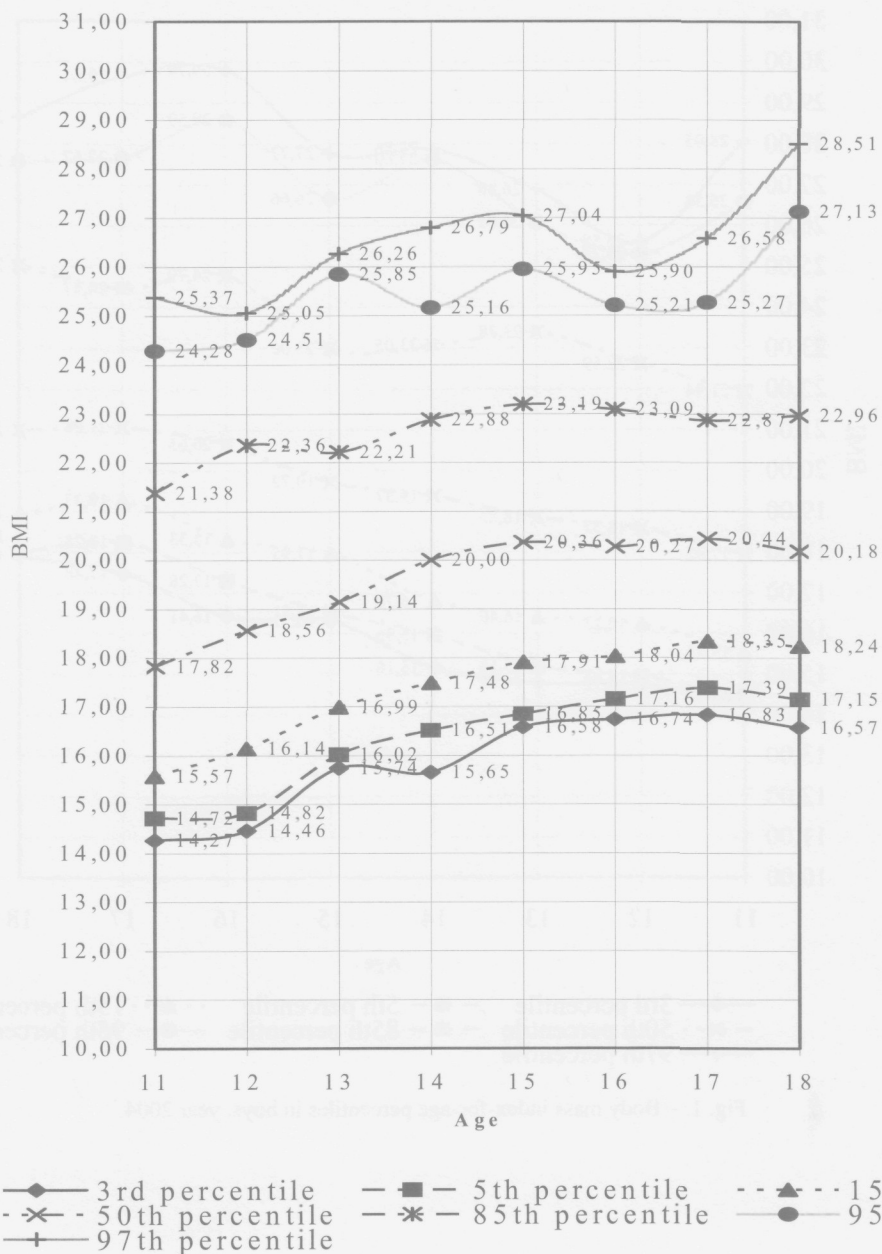


Fig. 2. – Body mass index-for-age percentiles in girls, year 2004.

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L'ÉTUDE ANTHROPOMÉTRIQUE DES DEUX POPULATIONS DE L'AIRE DES CARPATHES ORIENTAUX: LA VALLÉE SUPÉRIEURE DE BISTRITZA MOLDAVE ET LA VALLÉE DE SON AFFLUENT BICAZ

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C VULPE, CRISTIANA GLAVCE, ELEONORA LUCA*

Anthropometric study of two populations from the area of Oriental Carpathians: upper valley of Bistrița and the valley of its confluent, Bicăz. In the present paper we take back a former study started in 1955, when the lake Bicăz of the hydroelectric power station "Stejaru" was not formed yet. Six communities from both valleys, totalizing 936 subjects of both sexes, have been anthropologically investigated. After analyzing the 26 cephalic-facial and corporeal parameters, it has resulted that the already mentioned populations have characteristic structures for each of them. On Bistrița and Bicăz valleys prevail dinaric and alpine features respectively. Because of the position of these localities, close to communication roads with Transylvania, influences to facial anthropologic features from immigrants coming across the mountains cannot be excluded. Similar features were found in two northern localities – Șarul Dornei and Pănași. Literary sources indicate influences from people coming from Transylvania, the so-called "ungureni".

Les recherches de la zone du bassin supérieur de Bistritza ont été entreprises dans la période 1955–1960 et ont représenté «les recherches de sauvetage» (de fixation documentaire) des villages dont l'emplacement suivait à disparaître par suite de la formation du lac d'accumulation de Bicăz.

Les investigations anthropologiques se sont intégrées dans l'étude pluridisciplinaire: botanique, faunistique (sous le rapport des relations de milieu naturel), archéologique, linguistique, ethnographique et folklorique.

Les recherches de terrain ont été entreprises dans vallée de Bistritza sur les communautés villageoises Buhănița, Hangu, Ceahlău, Bistrițioara, Călugăreni et Poiana Teiului et aussi dans la vallée de Bicăz sur les habitants des villages Bicăzu, Ardelean, Bicăz-Chei et Dămuc (Fig.1).

* Le remaniement statistique et l'arrangement à l'aide du computer ont été assurés par Monica Petrescu

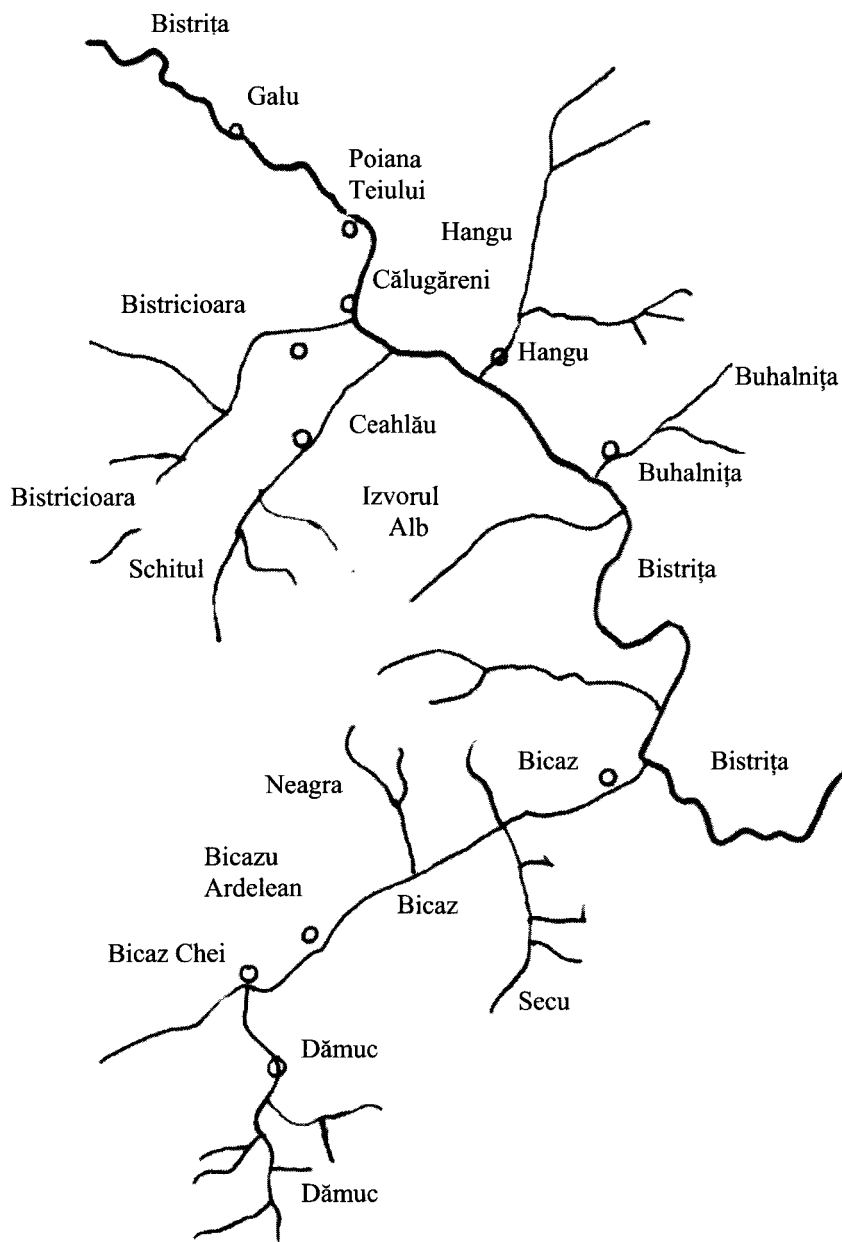


Figure 1 – Le bassin supérieur de Bistrița avec les habitats cherchés anthropologiquement.

La valorisation des cettres recherches anthropologiques a démarré en 1957 (soudain) avec le remaniement des résultats concernant la communauté Hangu, sur un échantillon de 100 hommes par Olga Necrasov, Suzana Pop et Theodor Enăchescu (7).

Cette action de valorisation n'a pas pu être reprise seulement aujourd'hui grâce aux possibilités offertes par L'Institut d'anthropologie «Francisc J. Rainer» de l'Académie Roumaine.

L'origine historique de ces deux groupes de populations cherchés est différente. Dans diverses publications on fait des références chez quelques-unes influences du côté de Transylvanie sur la population de la vallée supérieure de Bistrița par l'immigration des uns habitants pour des causes socio-économiques ou religieuses (1, 2).

La question qui se pose est la suivante: comment se reflète l'origine différente de cettres deux populations sur leur structure, bien qu'elles vivent depuis longtemps (des siècles) dans des conditions de milieu similaires? Voilà la thème de l'étude présente.

Aujourd'hui, après l'inondation des emplacements d'habitation qui se trouvaient le long de cettres deux rivières, Bistritza et Bicaz, les populations sont transférées, soit sur les versants qui se voient avec le lac d'accumulation, soit près de différents affluents de Bistritza. Ainsi on ouvert un nouveau domaine de recherche: Quel a été l'effet de la pression sélective sur la répartition structurale de base des populations?

MATÉRIEL ET RÉSULTATS

Nous présentons ici en totalité le matériel prélevé sur les six communautés de la vallée de Bistritza et sur le trois de la vallée de Bicaz. En même temps ont été reprise l'étude sur la localité Hangu qui a été groupée avec Buhalnița, en totalisant ainsi 462 sujets, dont 267 hommes et 195 femmes.

A cause de l'espace éditorial ont plus été groupées les communauté Poiana Teiului avec Călugăreni et Ceahlău avec Bistricioara. Cette démarche technique a été possible parce que – comment on verra – les caractéristiques structurales de ces villages sont très semblables, ainsi que les groupages effectués ne touchent pas les exigences génétiques.

Dans chaque communauté de la vallée de Bistritza ont été cherchés tant les hommes que les femmes, tandis que sur la vallée de Bicaz n'ont pas été cherchés seulement les hommes. Mais ça, de point de vue de la taxonomie, ne constitue pas un préjudice parce que la plus pénétrante expression des caractères se réalise aux hommes, comment on résulte aussi en d'autres travaux (5).

Les ensembles mixtes, hommes – femmes, sont très utiles dans la recherche du dimorphisme sexuel qui peut être différent d'une population à l'autre selon le

processus de macrosomatisation ou de microsomatisation, comment ont montré les uns des auteurs (4).

Le matériel d'étude du présent travail concerne 936 sujets, dont 581 hommes et 355 femmes.

Pour la caractérisation anthropologique des populations ont été utilisés 26 paramètres anthropométriques, dont 17 céphalo-faciaux et 9 corporels.

À l'appui de l'analyse structurale des populations étudiées les auteurs ont utilisé la morphogramme taxionomique (3) dont toutes les caractéristiques évaluées sur les échelles de variation ont été représentées dans un tout graphique.

On a venu par cette modalité à la rencontre des exigences depuis longtemps ressentis en anthropologie. Ainsi, chaque «faciès anthropologique» reçoit la propre empreinte anthropométrique dont la éloigne ou la rapproche d'un autre groupe de population.

Si en ce qui concerne les indices on appelle seulement au rapport des deux dimensions, en échange, quant s'utilise la morphogramme taxinomique on peut être associées graphiquement plus de dimensions dont on crée une image d'ensemble plus complexe et plus complète sur la structure céphalique.

LES CARACTÈRES DE LA CALOTTE CÉPHALIQUE

Dimensions. En examinant les moyennes des principales dimensions céphaliques par rapport aux limites des échelles de classification on constate que celles-ci se situent, en général, dans les catégories moyenne et grande.

Les valeurs moyennes de la longueur céphalique se situent à la limite supérieure de la catégorie moyenne chez les populations de la vallée supérieure de Bistritza, tandis que chez les échantillons masculins de la vallée de Bicaz cette dimension se situe à la limite inférieure de la catégorie grande (Tableau 1, fig.2).

Chez toutes les populations (de deux vallées) les valeurs moyennes de la largeur céphalique on disposent autour de la limite entre les catégories moyenne-grande. La moyenne de la hauteur céphalique se place aussi à la limite de transition entre ces deux catégories (moyenne-grande) chez les habitants de la vallée de Bicaz, tandis que chez les populations de la vallée supérieure de Bistritza, ce dernier paramètre (le diamètre vertico-céphalique) a une position visiblement plus augmentée, dont les valeurs moyennes ont la tendance de se grouper au centre de la catégorie grande. On retient ici la différence quantitative et structurale, dinaroïde (Tableau 1, Figs. 2, 4).

La largeur du front s'inscrit par la moyenne à la moitié inférieure et au centre de la catégorie grande chez tous les habitants de la région étudiée.

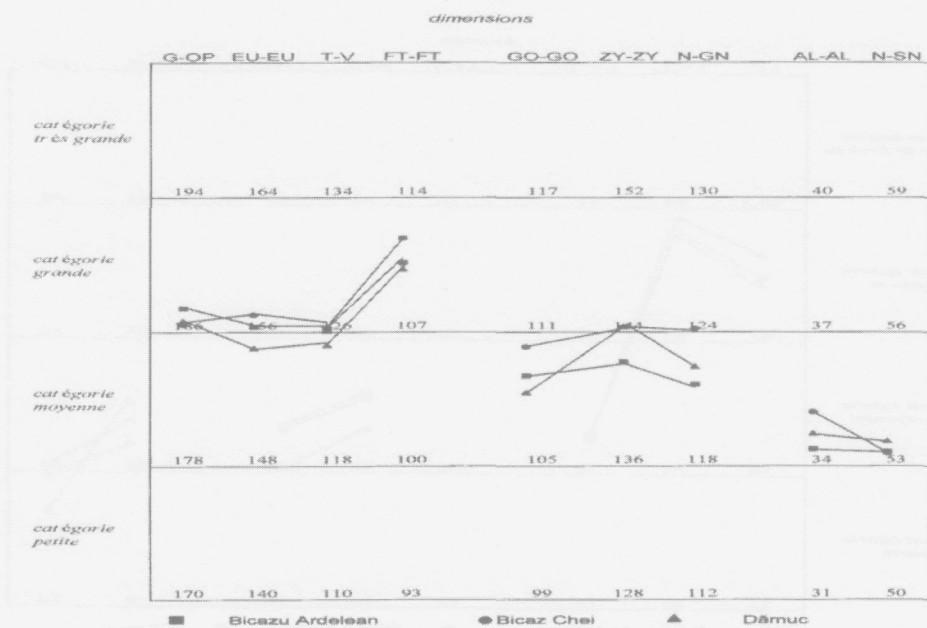
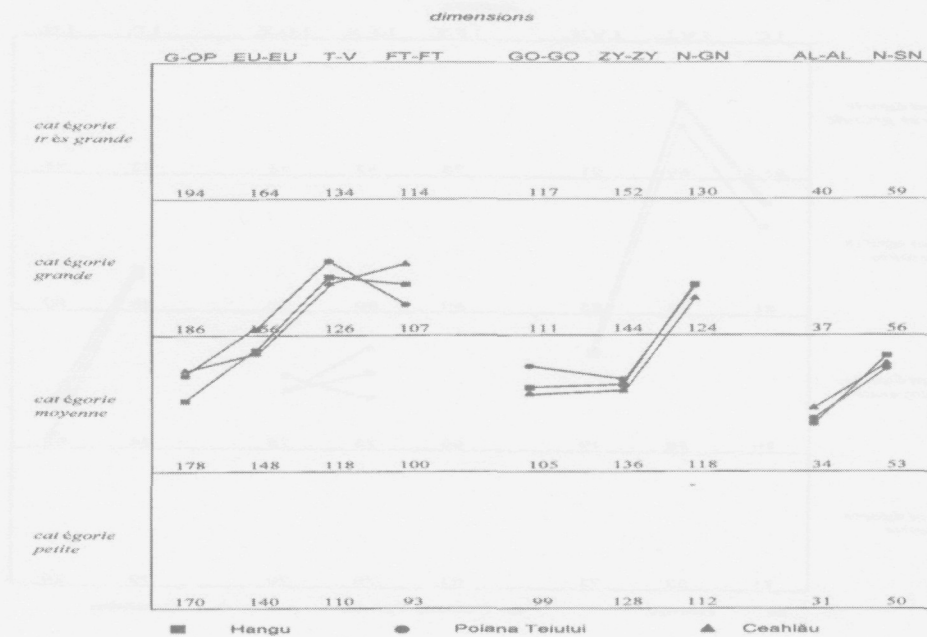


Fig. 2 – Morphogramme taxonomique – hommes.

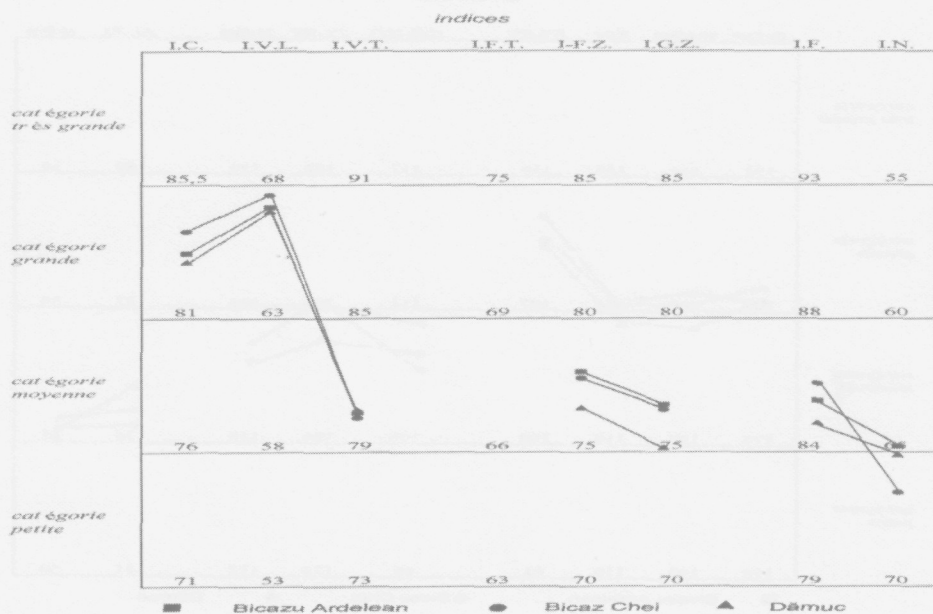
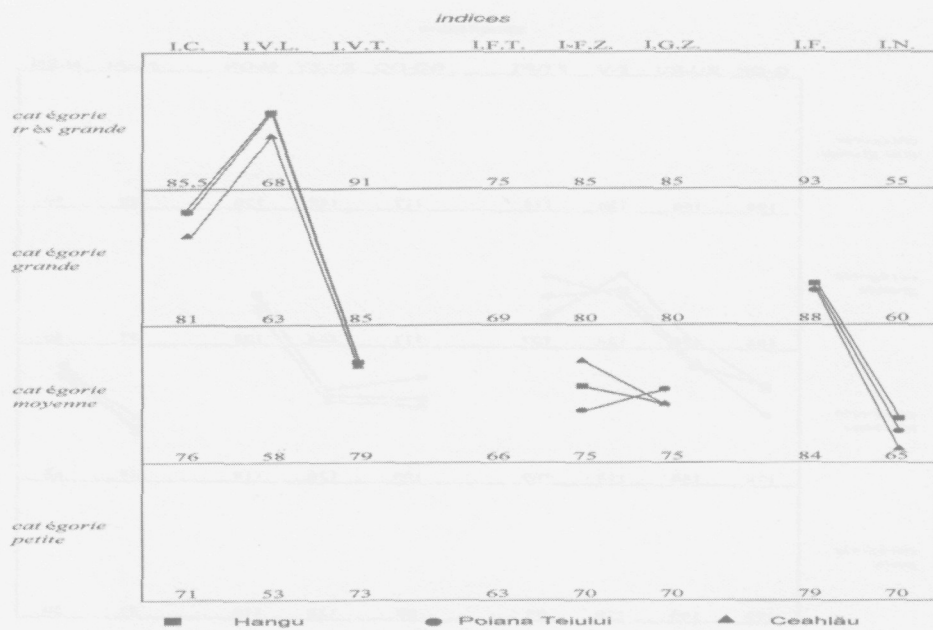


Fig. 3 – Morphogramme taxonomique – hommes.

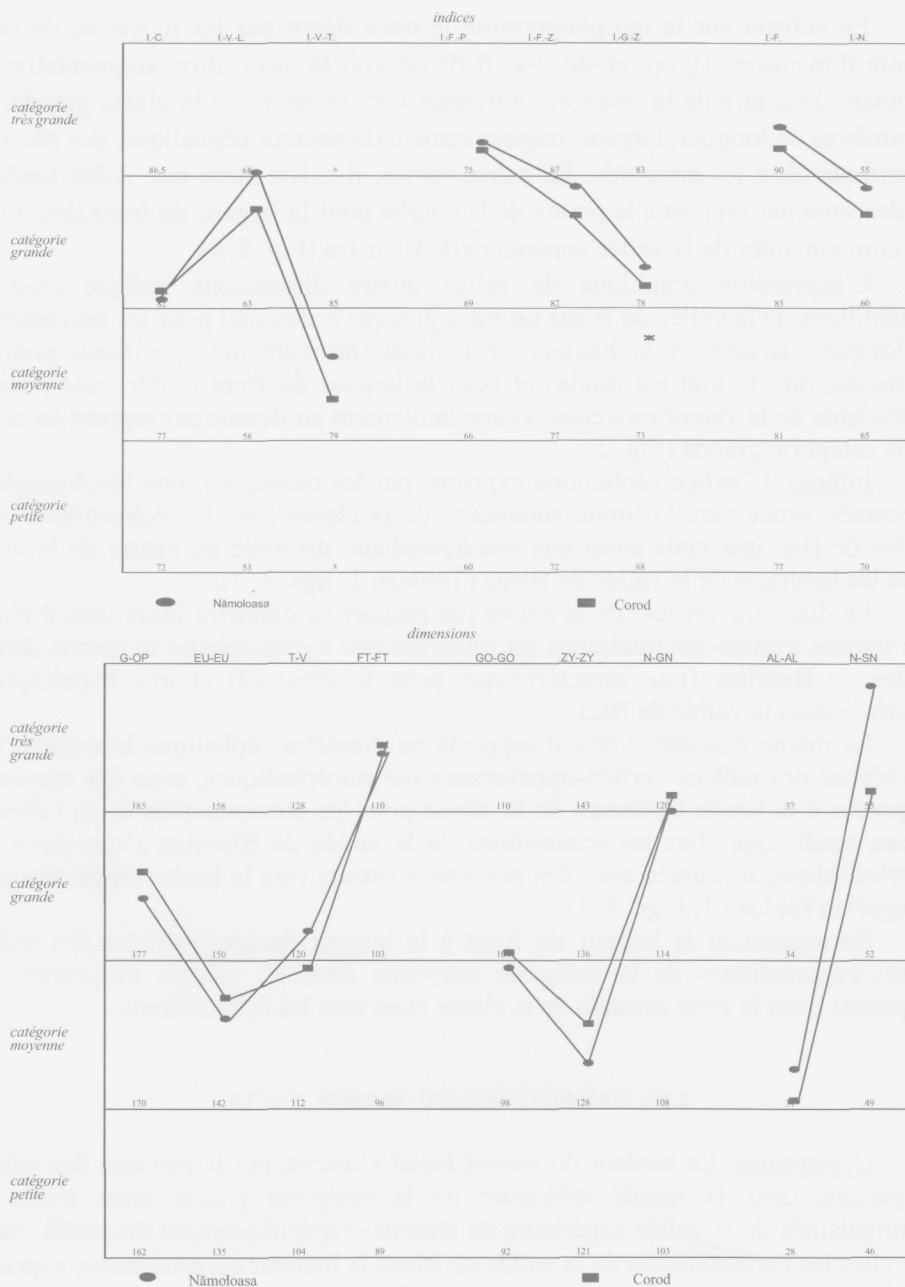


Fig. 4 – Morphogramme taxonomique – femmes.

En suivant sur la morphogramme le tracé décrit par les moyennes de celles quatre dimensions (g-op, eu-eu, t-v, ft-ft) on voit la disposition augmentative, en débutant de centre de la catégorie moyenne vers le centre de la classe grande, des paramètres de longueur, largeur, respectivement de hauteur céphalique, des positions spécifique chez les dinaroids. En même temps, il existe aussi une faible tendance de descente par rapport à la pointe de la courbe pour la largeur du front chez toutes les communautés de la vallée supérieure de Bistritza (Fig. 2, 4).

L'expression graphique de celles quatre dimensions indique chez les échantillons de la vallée de Bicaz un tracé presque horizontal pour les moyennes de la longueur, largeur et la hauteur céphalique (horizontalité spécifique pour les alpinoids, où «le tout est rond») et pour la largeur du front montre une position ascendante de la valeur moyenne, située faiblement au-dessus par rapport au centre de la catégorie grande (Fig. 2).

Indices. L'indice céphalique exprime, par les moyennes, une brachycéphalie accentuée située vers la limite supérieure de la classe chez les échantillons de la vallée de Bistritza mais aussi une brachycéphalie disposée au centre de la classe chez les habitants de la vallée de Bicaz (Tableau 1, figs. 3, 4).

Le diamètre vertical de la calote par rapport au diamètre longitudinal réalise des indices vertico-longitudinaux en illustrant une hypsicéphalie moyenne dans la vallée de Bistritza (une caractéristique pour le dinaroid) et une hypsicéphalie modérée dans la vallée de Bicaz.

Le même diamètre vertical rapporté au diamètre céphalique horizontal (eu-eu) réalise des indices vertico-transversaux métriocéphaliques, avec des moyennes disposées à la limite inférieure de la classe pour les communautés de la vallée de Bicaz, tandis que chez les échantillons de la vallée de Bistritza s'enregistre une métriocéphalie accentuée avec des moyennes situées vers la limite supérieure de la catégorie (Tableau 1, Figs. 3, 4).

En rapportant la largeur du front à la largeur faciale résultent des indices fronto-zygomatiques de la catégorie moyenne dont les valeurs moyennes sont disposées dans la zone centrale de la classe chez tous les échantillons.

LES CARACTÈRES DU MASSIF FACIAL

Dimensions. La hauteur du massif facial s'inscrit, par la position des valeurs moyennes, dans la moitié inférieure de la catégorie grande chez toutes les communautés de la vallée supérieure de Bistritza (spécifiquement dinaroid), tandis que chez les communautés de la vallée de Bicaz la hauteur est plus basse, exprimée par les valeurs moyennes situées soit à la limite entre les catégories moyenne-grande soit dans la moitié supérieure de la classe moyenne (Tableau 1, Figs. 2, 4).

La largeur de la face est moyenne, avec des valeurs moyennes disposées, plusieurs fois, dans le centre de la classe moyenne chez les communautés de la vallée de Bistritza. Chez les populations de la vallée de Bicaz existe une tendance



Planche I – Types anthropologiques de la vallée supérieure de Bistritza

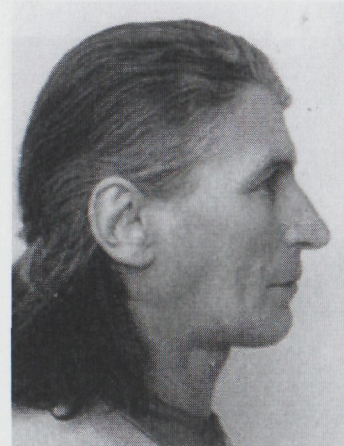


Planche II – Types anthropologiques de la vallée supérieure de Bistritza

d'élargissement de cette dimension (spécifiquement alpinoïde), tendance révélée par les valeurs moyennes disposées vers la limite entre les classes moyenne-grande.

La largeur de la mandibule est moyenne chez tous les échantillons, les valeurs moyenne étant disposées dans la moitié supérieure de la catégorie moyenne.

La représentation graphique de la valeur moyenne de ces trois paramètres (n-gn, zy-zy, go-go) montre que pour la vallée de Bistritza les tracés ont un aspect approximativement de «L» tourné, en ayant la moitié de la branche verticale située entre la catégorie moyenne-grande, tandis que pour la vallée de Bicaz les courbes décrites par les mêmes dimensions, ont l'aspect de «V» (angle) avec l'ouverture basse et avec le sommet vers la zone de transition moyenne-grande. Ces tracés mettent en évidence des différenciations structurales chez les deux échantillons par les caractéristiques dinaroides et alpinoïdes (Figs. 2, 4, planches I, II).

Le nez est moyennement haut et moyennement large vers étroit, les valeurs moyennes étant très rapprochées pour la plupart des échantillons de la vallée de Bistritza, excepté les femmes de Ceahlău dont le nez est un peu plus bas et plus étroit, situé par la moyenne dans la moitié inférieure de la catégorie moyenne. Sur la vallée de Bicaz, les valeurs des dimensions indiquent une visible tendance vers la diminution de la hauteur mais aussi vers le rétrécissement du nez, les valeurs moyennes étant placées à et vers la limite inférieure de la catégorie moyenne.

Indices. L'indice morphologique facial réalise chez les populations de la vallée de Bistritza des moyennes situées au-dessous du centre de la catégorie leptoprosope pour les hommes ou dans la moitié supérieure de la même classe pour les femmes. En échange, les hommes de la vallée de Bicaz présentent des valeurs moyennes de l'indice facial disposées dans la moitié inférieure de la catégorie mésoprosope (Tableau 1, figs. 3, 4).

L'indice zygo-mandibulaire, avec des valeurs moyennes appartenant à la catégorie moyenne, se trouve en positions différentes d'un groupe à l'autre. Ainsi, pour la plupart des échantillons, les valeurs moyennes sont disposées au centre et au-dessus ou au-dessous du centre de la classe moyenne, tandis que pour les hommes de Dămuc la valeur moyenne se place à la limite inférieure de la même classe.

L'indice nasal se caractérise par des valeurs moyennes mésorhines chez les échantillons de la vallée de Bistritza. Cettes valeurs se situent soit dans la moitié inférieure soit dans la zone centrale de la catégorie. Chez les populations de la vallée de Bicaz prédominent les nez de catégorie camaerhine (Dămuc, Bicaz-Chei), en existent aussi une valeur moyenne de type mésorhine (Bicazu Ardelean) mais avec une tendance vers la catégorie camaerhine (Tableau 1, figs.3, 4).

Tableau 1

Variabilité anthropométrique des caractères céphalo-faciaux

Caractère	Communauté Localité	♂					♀				
		N	Min	Max	X	σ	N	Min	Max	X	σ
g-op	Hangu	267	168	208	182,19	6,37	195	154	194	174,64	5,86
	Poiana Teiului	49	169	195	183,65	6,04	81	163	188	176,63	5,72
	Ceahlău	93	165	202	183,97	6,99	79	163	187	175,64	5,19
	Bicazu Ardelean	38	178	200	187,50	5,62					
	Bicaz Chei	93	173	201	186,52	5,53					
	Dămuc	40	170	204	186,77	7,42					
eu-eu	Hangu	267	140	186	155,13	5,36	195	136	165	149,62	5,04
	Poiana Teiului	49	147	171	156,33	5,18	81	140	159	149,96	4,40
	Ceahlău	93	141	166	154,99	5,23	79	140	163	149,78	4,54
	Bicazu Ardelean	38	147	168	156,37	5,15					
	Bicaz Chei	94	144	171	157,10	5,33					
	Dămuc	40	140	164	155,07	5,36					
ft-ft	Hangu	266	97	123	109,52	4,45	195	96	119	107,17	3,96
	Poiana Teiului	49	96	116	108,49	3,90	81	95	117	106,32	4,36
	Ceahlău	93	98	120	110,60	4,60	79	89	114	104,75	4,23
	Bicazu Ardelean	38	101	117	110,71	3,59					
	Bicaz Chei	94	104	120	112,01	3,51					
	Dămuc	40	100	121	110,40	4,72					
t-v	Hangu	267	112	145	129,25	5,27	194	112	138	125,41	4,90
	Poiana Teiului	49	118	140	130,18	4,46	81	114	134	124,76	4,49
	Ceahlău	92	115	141	128,91	4,68	79	112	135	123,42	4,22
	Bicazu Ardelean	38	117	140	126,18	5,00					
	Bicaz Chei	94	115	138	126,36	4,97					
	Dămuc	40	115	138	125,30	5,41					

zy-zy	Hangu	267	127	164	140,95	5,30	195	120	147	133,15	4,80
	Poiana Teiului	49	131	151	141,28	5,15	81	119	145	133,31	5,12
	Ceahlău	93	125	154	140,67	6,17	79	120	139	131,58	3,93
	Bicazu Ardelean	38	130	153	142,11	5,10					
	Bicaz Chei	94	128	159	144,24	6,29					
	Dâmuc	40	128	158	144,25	6,83					
go-go	Hangu	266	93	129	108,71	6,47	195	89	114	102,57	4,70
	Poiana Teiului	49	97	126	109,65	6,02	81	88	116	101,98	4,68
	Ceahlău	93	90	124	108,47	6,92	79	91	109	100,81	4,04
	Bicazu Ardelean	38	98	120	109,03	6,07					
	Bicaz Chei	93	95	128	110,35	6,51					
	Dâmuc	40	89	127	108,27	7,40					
n-gn	Hangu	267	100	146	126,07	6,52	193	100	130	116,54	5,17
	Poiana Teiului	49	110	148	126,02	6,92	81	107	132	117,51	5,45
	Ceahlău	93	111	138	125,50	7,76	79	104	130	115,25	5,74
	Bicazu Ardelean	38	110	136	121,50	6,36					
	Bicaz Chei	94	108	140	124,05	6,92					
	Dâmuc	39	105	135	122,31	7,76					
n-sn	Hangu	267	46	73	55,48	4,12	195	42	61	51,48	3,67
	Poiana Teiului	49	47	70	55,20	4,02	81	46	61	51,73	3,33
	Ceahlău	93	47	65	55,32	3,27	79	43	60	50,07	3,41
	Bicazu Ardelean	38	47	60	53,21	3,66					
	Bicaz Chei	94	44	64	53,18	4,05					
	Dâmuc	40	46	61	53,45	3,43					
al-al	Hangu	267	28	42	35,00	2,51	195	27	41	32,26	2,34
	Poiana Teiului	49	30	41	35,12	2,43	81	26	39	32,20	2,65
	Ceahlău	93	29	42	35,56	2,87	79	28	36	31,59	1,81
	Bicazu Ardelean	37	31	42	34,35	2,46					
	Bicaz Chei	94	29	42	35,18	3,04					
	Dâmuc	40	29	42	34,70	3,32					

(cont. tableau 1)

I.C.	Hangu	267	73	95	85,23	3,58	195	75	95	85,74	3,45
	Poiana Teiului	49	77	97	85,20	3,82	81	76	94	84,96	3,21
	Ceahlău	93	74	93	84,35	3,83	79	81	93	85,31	2,74
	Bicazu Ardelean	38	76	91	83,46	3,45					
	Bicaz Chei	94	77	93	84,29	3,62					
	Dâmuc	40	74	92	83,13	3,82					
I.V.L.	Hangu	267	59	79	71,00	3,35	195	61	81	71,87	3,18
	Poiana Teiului	49	65	77	70,93	2,71	81	66	76	70,67	2,37
	Ceahlău	93	63	76	70,14	2,85	79	64	78	70,31	2,39
	Bicazu Ardelean	38	63	73	67,32	2,46					
	Bicaz Chei	94	61	76	67,79	2,94					
	Dâmuc	40	58	76	67,17	3,55					
I.V.T.	Hangu	267	72	97	83,37	3,53	195	74	93	83,88	3,54
	Poiana Teiului	49	78	89	83,32	2,88	81	77	90	83,23	2,95
	Ceahlău	93	76	91	83,23	3,19	79	77	90	83,46	3,15
	Bicazu Ardelean	38	76	87	80,73	3,02					
	Bicaz Chei	94	74	88	80,49	3,20					
	Dâmuc	40	73	92	80,86	3,89					
I.P.Z.	Hangu	267	76	101	90,91	3,08	195	81	96	89,03	2,74
	Poiana Teiului	49	83	96	90,39	3,05	81	82	94	88,91	2,78
	Ceahlău	93	81	98	90,77	2,97	79	82	94	87,89	2,47
	Bicazu Ardelean	38	81	97	90,93	3,34					
	Bicaz Chei	94	79	101	91,86	3,67					
	Dâmuc	40	84	101	93,05	3,99					
I.F.Z.	Hangu	267	70	87	77,75	3,10	195	75	90	80,52	2,51
	Poiana Teiului	49	70	83	76,86	2,79	81	74	85	79,79	2,55
	Ceahlău	93	72	85	78,69	2,99	79	72	86	79,62	2,79
	Bicazu Ardelean	38	72	84	77,97	2,91					
	Bicaz Chei	94	72	84	77,73	2,62					
	Dâmuc	40	68	83	76,61	2,97					

(cont. tableau 1)

I.G.Z.	Hangu	267	67	87	77,13	3,79	195	68	84	77,07	3,23
	Poiana Teiului	49	70	86	77,65	3,58	81	70	84	76,52	3,01
	Ceahlău	93	69	87	77,13	3,87	79	71	84	76,63	2,72
	Bicazu Ardelean	38	68	84	76,74	3,68					
	Bicaz Chei	94	67	86	76,55	4,05					
	Dămuc	40	61	82	75,12	4,71					
I.F.	Hangu	267	71	109	89,54	5,26	195	75	99	87,59	4,19
	Poiana Teiului	49	81	100	89,29	5,13	81	79	100	88,22	4,29
	Ceahlău	93	77	102	89,34	5,09	79	78	98	87,62	4,23
	Bicazu Ardelean	38	77	94	85,57	4,75					
	Bicaz Chei	94	75	100	86,11	5,31					
	Dămuc	40	66	101	84,88	5,32					
I.N.	Hangu	267	45	85	63,43	6,50	195	48	80	62,96	6,14
	Poiana Teiului	49	49	76	63,88	5,62	81	49	76	62,41	5,67
	Ceahlău	93	52	85	64,50	6,43	79	47	75	63,40	5,73
	Bicazu Ardelean	38	55	78	64,79	5,86					
	Bicaz Chei	94	49	84	66,51	7,39					
	Dămuc	40	51	78	65,11	6,64					

CARACTÈRES CORPORALES

La valeur moyenne de la stature masculine se situe au début de la catégorie haute et celle de la stature féminine dans la catégorie moyenne pour les communautés de la vallée de Bistritza, excepté la moyenne des statures très hautes chez les femmes de Poiana Teiului. Les hommes de la vallée de Bicaz sont de taille sur-moyenne mais aussi moyenne (ceux de Dămuc). Les statures plus hautes des habitants de la vallée de Bistritza sont en corrélation aussi avec les traits céphalo-faciaux de type dinaroïde, tandis que les tailles plus basses chez les habitants de la vallée de Bicaz sont en concordance avec les paramètres céphalo-faciaux de type alpinoïde (Tableau 2).

Les valeurs moyennes de la taille-assise s'inscrivent le plus souvent à la limite supérieure de la catégorie moyenne, excepté les hommes de Dămuc, avec une valeur moyenne au début de la catégorie moyenne et les femmes de Poiana Teiului qui ont un tronc au début de la catégorie sur-moyenne (Tableau 2).

En comparant échantillons masculins de celles deux vallées en ce qui concerne la longueur du membre inférieur on constate l'existence des valeurs moyennes plus hautes dans la vallée de Bistritza (80-82 cm) et plus basses dans la vallée de Bicaz (78-79 cm). Si en ce qui concerne la taille-assise presque chez tous les hommes les valeurs moyennes sont approximativement de 89 cm (excepté Dămuc – 86 cm) alors les différences concernant la longueur des membres inférieurs sont celles que font les statures plus hautes sur la vallée de Bistritza et plus basses sur la vallée de Bicaz (c'est un autre caractère dinaroïde sur la vallée de Bistritza).

L'indice cormique s'inscrit par les valeurs moyennes enregistrées dans la catégorie macrocorme chez toute les populations (Tableau 2).

L'indice skélique est en général de type mésatiskèle chez les hommes de la vallée de Bicaz et submacroskèle chez les hommes de la vallée de Bistritza. Cet indice différencie bien les dinaroïds sub-macroskèles de la vallée de Bistritza par rapport aux alpinoïds mésatiskèles de la vallée de Bicaz.

Par la valeur moyenne de l'indice acromio-iliaque les femmes de la vallée de Bistritza ont une forme rectangulaire du tronc et les hommes de deux vallées ont une forme intermédiaire entre celle trapézoïdale (typiquement masculine) et celle rectangulaire.

Tableau 2

Variabilité de quelques paramètres corporeux

Caractère	Communauté Localité	♂					♀				
		N	Min	Max	X	σ	N	Min	Max	X	σ
V-sol	Hangu	266	1545	1916	1698,72	61,14	195	1416	1787	1578,76	59,71
	Poiana Teiului	49	1604	1892	1719,10	62,13	81	1478	1748	1600,80	60,67
	Ceahlău	93	1590	1843	1703,92	58,98	79	1437	1672	1576,44	53,42
	Bicazu Ardelean	38	1573	1827	1686,34	51,05					
	Bicaz Chei	94	1560	1843	1682,98	55,50					
	Dâmuc	40	1540	1766	1655,50	62,75					
V-assis	Hangu	262	790	997	894,70	34,32	184	711	946	848,13	32,47
	Poiana Teiului	49	837	947	895,51	26,99	81	776	922	855,36	29,84
	Ceahlău	92	830	987	890,99	35,21	78	776	909	844,93	27,96
	Bicazu Ardelean	37	842	952	896,81	27,01					
	Bicaz Chei	93	794	977	890,54	32,86					
	Dâmuc	40	738	942	869,12	38,75					
L.M.I.	Hangu	262	704	933	803,46	41,23	184	637	910	732,02	43,11
	Poiana Teiului	49	746	964	823,59	49,61	81	617	854	745,44	44,76
	Ceahlău	92	726	914	814,05	39,20	78	612	810	730,91	42,83
	Bicazu Ardelean	37	711	885	792,00	37,60					
	Bicaz Chei	93	715	939	792,57	39,32					
	Dâmuc	40	693	863	786,37	42,40					
Dap-thor.	Hangu	209	166	279	203,96	16,60	175	155	287	190,26	20,48
	Poiana Teiului	46	170	282	208,30	17,82	79	160	250	191,25	17,94
	Ceahlău	51	161	242	203,00	16,61	53	164	222	189,68	15,41
A-A	Hangu	216	275	432	385,98	19,41	185	296	395	356,11	17,12
	Poiana Teiului	47	356	433	383,09	14,90	78	320	385	353,55	13,38
	Ceahlău	51	343	423	385,57	17,48	52	322	386	354,77	16,02

(cont. tableau 2)

Ic-Ic	Hangu	213	231	390	286,09	17,18	184	246	349	289,63	16,02
	Poiana Teiului	47	211	330	281,55	20,09	78	220	326	287,21	17,22
	Ceahlău	48	200	310	282,39	18,95	52	253	368	286,44	18,21
I.cr.	Hangu	267	48	56	52,68	1,37	185	49	57	53,73	1,55
	Poiana Teiului	49	47	55	52,12	1,49	81	50	58	53,46	1,51
	Ceahlău	93	49	57	52,29	1,39	79	50	58	53,62	1,61
	Bicazu Ardelean	38	50	56	53,20	1,38					
	Bicaz Chei	94	49	56	52,92	1,38					
	Dămuc	40	48	56	52,51	1,60					
I.sk.	Hangu	262	77	105	89,98	4,94	184	75	105	86,39	5,41
	Poiana Teiului	49	81	113	92,01	5,60	81	72	98	87,20	5,23
	Ceahlău	92	77	104	91,46	5,01	78	74	100	86,58	5,54
	Bicazu Ardelean	37	81	98	88,37	4,66					
	Bicaz Chei	93	78	104	89,09	5,01					
	Dămuc	40	79	110	90,62	5,93					
I.A.Ic.	Hangu	76	60	111	74,13	7,00	53	68	90	80,77	3,83
	Poiana Teiului	47	56	91	73,56	5,43	44	62	89	80,96	4,97
	Ceahlău	48	64	83	73,47	5,59	52	70	101	80,81	5,09

CONCLUSIONS

À la suite de l'analyse des paramètres anthropométriques chez les deux groupes de populations on a résulté quelques particularités structurales qui diffèrent d'un lot à l'autre.

Ainsi, chez les échantillons de la vallée de Bistritza la calotte céphalique moyennement longue vers longue et en même temps moyennement large vers large confère à l'indice céphalique un caractère de brachycéphalie accentuée. Le diamètre vertical céphalique, étant en général haut, donne des indices vertico-longitudinaux moyennement hypsicéphaliques et vertico-transversaux accentué métriocéphaliques. Les fronts sont moyennement larges. À la face haute et moyennement large correspond un indice leptoprosopique et au nez moyennement haut vers haut et moyennement large vers étroit correspond un indice mésorhine au début de la catégorie. La stature est haute au début de la catégorie chez les hommes et chez les femmes est moyenne. L'indice cormique enregistre des moyennes macrocormes et cel skélique des moyennes de type submacroskélie. Conformément à l'indice acromio-iliaque, les hommes ont des conformations du tronc intermédiaires entre la forme trapezoïdale et celle rectangulaire, tandis que chez les femmes sont prédominantes les formes rectangulaires.

Chez les série de la vallée de Bicaz la calotte céphalique, haute au début de la catégorie et moyennement large vers large, enregistre des indices moyennement brachycéphaliques et par le diamètre vertical, moyennement haut vers haut on réalise des indices vertico-longitudinaux modérément hypsicéphaliques et vertico-transversaux métriocéphaliques au début de la catégories. La face, moyennement haute et large, est mésoprosope et le nez, moyen vers bas pour la hauteur et moyen vers étroit pour la largeur est moyennement camærhine. La stature enregistre des valeurs moyennes, surmoyennes et aussi moyennes. L'indice cormique se met en évidence par macrocormie et l'indice skélique par des valeurs de type mésatsiskèle. L'indice acromio-iliaque a mis en évidence une conformation du tronc de type intermédiaire entre la forme trapezoïdale et celle rectangulaire, ceux-ci étant plus alpinoïdes.

En estimant en ensemble les conformations céphalo-faciales et corporelles chez les deux groupes de populations on constate que les habitants de la vallée supérieure de Bistritza ont la tête plus accentuée brachycéphale par rapport aux séries de la vallée de Bicaz, plus haute par l'indice vertico-longitudinal moyennement hypsicéphalique devant cel modérément hypsicéphalique et plus large par l'indice vertico-transversal accentué métriocéphalique comparativement à cel initialement métriocéphalique. Conformément à l'indice facial de catégorie leptoprosope, la face des habitants de la vallée de Bistritza est plus haute que celle de la vallée de Bicaz, dont l'indice est mésoprosopique. En concordance avec l'aspect de la face le nez est aussi plus haut chez les premiers (indice initialement mésorhine) par rapport aux derniers (indice de type camærhine). La stature est initialement haute chez les hommes de la vallée de Bistritza et surmoyenne chez les hommes de la vallée de Bicaz. L'indice cormique enregistre des moyennes de type macrocorme chez tous les échantillons, tandis que l'indice skélique est de type

submacroskèlique chez les séries de la vallée de Bistritza et de type mésatiskèlique chez les échantillons de la vallée de Bicaz.

Par la représentation sur la morphogramme des dimensions céphalo-faciales on résulte des complexes associatifs différents chez les deux lots, en enregistrant par la plupart des paramètres anthropométriques des traits spécifiques dinaroïdes chez les populations de la vallée de Bistritza et prédominant alpinoïdes chez les habitants de la vallée de Bicaz.

Des complexes associatifs des dimensions similaires avec les celles des habitants de la vallée de Bicaz ont été trouvés aussi dans deux communautés – Panaci et Șarul Dornei – situées plus au nord, dans la même zone montaigneuse des Carpathes Orientaux.

Un type plus particulier de complexe associatif présentent les populations de la vallée supérieure de Bistritza où le tracé décrit par les dimensions céphaliques sur la morphogramme paraît être spécifiquement à ces habitants.

On n'est pas exclus que dans cette zone de liaison, par les voies d'accès avec Transylvanie, qu'existent aussi quelques influences des habitants au-delà de monts dans le faciès anthropologique des populations du bassin supérieur de Bistritza. Notamment que dans quelques publications est mentionnée la communauté Ceahlău où s'eût été établis il y deux-trois siècles les habitants «ungureni», des bergers roumains transylvains.

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ASPECTS CONCERNANT LE DÉVELOPPEMENT PHYSIQUE ET L'ÉTAT DE NUTRITION DES ENFANTS ÉCOLIERS DE BUCAREST AVEC DÉFICIENCES DE LA VUE

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Aspects regarding physical and nutritional development of the school-aged children with visual deficiencies from Bucharest. This paper is a part from a larger anthropological research, started in 2006, regarding the children from the first to the ninth class from the School for Visual Deficients from Bucharest. The sample includes 135 children, aged between 7 and 17 years. Reporting the data for height, weight and the Rohrer index to the national standards and to the average values of the normal children from Bucharest it results that these children have a good height-weight development, the most phenotypes placing themselves inside the interval " $M \pm \sigma$ ". Variation curves of nutritional estate illustrated by Quetelet and Rohrer indexes are clearly oriented to a weight deficiency, and to hypotrophy respectively. More cases of trophic insufficiency, but also of nutritional excess are found in boys.

Pendant les années 2002–2005 nous avons développé une étude d'anthropologie médicale sur les enfants sourd-muets d'une école spéciale bucarestoise avec huit classes, concernant les caractéristiques céphalo-faciales, physiques et nutritionnelles (4).

Les études anthropologiques roumaines concernant les enfants déficients sont peu nombreuses (1, 5, 7, 8, 9).

En 2006–2007 nous avons commencé une autre étude d'anthropologie médicale sur les enfants avec déficiences de la vue d'une école spéciale bucarestoise (les classes I–IX)* concernant leur développement physique, la morphophysionomie de l'oeil et aussi beaucoup d'aspects médicaux et psycho-sociaux. La recherche continuera sur les jeunes et sur les adults avec déficiences de la vue.

Le présent travail entreprend d'apprécier le développement physique, précisément staturo-pondéral et l'état nutritionnel des ces enfants déficients par rapport aux enfants normaux.

* Nous remercions le personnel didactique et médical de l'école de Bucarest pour les déficients de la vue pour leur aide précieuse.

MATÉRIEL ET MÉTHODES

Le matériel d'étude est composé de 135 enfants avec déficiences de la vue, dont 89 garçons âgés de 7 à 17 ans et, respectivement, 46 filles âgées de 7 à 16 ans.

Sur la totalité des mesurages céphalo-faciaux et corporels prélevés au cours de la recherche, nous avons retenu ici les deux dimensions du rapport staturo-pondéral: la stature et le poids. On a calculé aussi l'indice de trophicité Rohrer, indice qui met mieux en évidence, par rapport aux autres indices de nutrition, la plénitude corporelle dans une perspective à trois dimensions (le poids est rapporté au cube de la stature: poids / stature³). Mais nous avons calculé aussi l'indice Quetelet (indice qui apprécie seulement dans une perspective à deux dimensions l'état de nutrition: poids / stature²), indice recommandé par O.M.S. (12).

Le volume des échantillons selon l'âge pour les deux sexes n'est pas statistiquement représentatif. C'est pourquoi (comme aussi dans le cas des enfants sourds-muets), pour mettre en évidence le développement physique de ces enfants par rapport aux enfants normaux, nous avons utilisé pour le poids et la stature les standards nationaux élaborés par l'Institut de Santé Publique de Bucarest (11). Les valeurs de l'indice Rohrer ont été comparées avec les valeurs moyennes des enfants normaux bucarestois (2, 3). Pour l'appréciation de l'état de nutrition des enfants on a utilisé les échelles de variation des indices Rohrer et Quetelet, sous la réserve en ce qui concerne la concordance avec l'âge.

Pour apprécier la position de chaque enfant avec déficiences de la vue par rapport à l'étalon utilisé concernant la stature, le poids et l'indice Rohrer chez les enfants normaux, nous avons calculé la variable normée (réduite) «z»: $z = (X - M) / \sigma$, où z = la variable normée; X = la valeur individuelle (phénotype) du caractère; M = la valeur moyenne-étalon; σ = l'écart-type de la moyenne-étalon (4, 12).

On a calculé la valeur-moyenne de «z» et les fréquences relatives des phénotypes selon le caractère et le sexe pour la stature, poids et l'indice Rohrer des enfants avec déficiences de la vue par rapport aux enfants normaux.

RÉSULTATS ET DISCUSSIONS

1. Le développement staturo-pondéral des enfants déficients par rapport aux enfants normaux

1.1. La stature (Tableaux 1 et 2; fig.1)

Les enfants avec déficiences de la vue, tant les garçons que les filles, ne s'éloignent pas significativement des valeurs moyennes nationales : la valeur «z» moyenne se situe très peu au-dessous de la moyenne-étalon.

En ce qui concerne la variabilité des phénotypes individuels, la plupart des enfants se placent dans l'intervalle « $M \pm \sigma$ ». Chez les filles, par rapport au garçons, s'enregistrent des fréquences plus élevées dans les catégories inférieures et plus élevées dans les catégories supérieures.

Tableau 1

Le développement staturo-pondéral des enfants avec déficience de la vue
par rapport aux enfants normaux

Caractère	Valeur „z”					
	Garçons (N = 89)			Filles (N = 46)		
	M	σ	eM	M	σ	eM
Stature	-0,17	$\pm 1,12$	$\pm 0,12$	-0,22	$\pm 0,94$	$\pm 0,14$
Poids	+0,11	$\pm 1,40$	$\pm 0,15$	+0,13	$\pm 0,93$	$\pm 0,14$
I. Rohrer	+0,72	$\pm 2,02$	$\pm 0,21$	+0,35	$\pm 1,44$	$\pm 0,21$

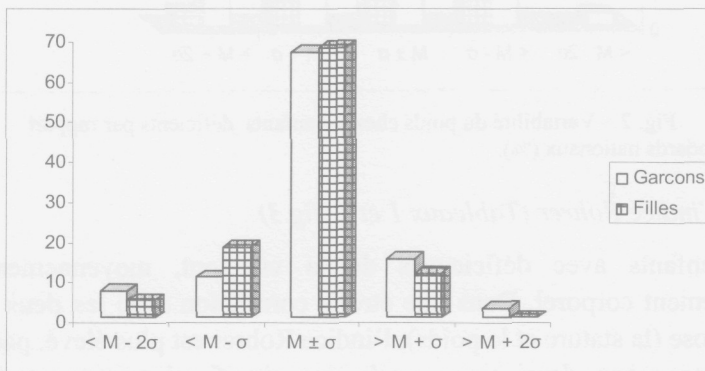


Fig. 1 – Variabilité de la stature chez les enfants a déficients par rapport aux standards nationaux (%).

1.2. Le poids (Tableaux 1 et 2; fig.2)

Concernant le poids, la valeur «z» moyenne se situe, chez les deux sexes, très peu et pas significativement au-dessus de la moyenne-étalon. Chez les garçons, la courbe de variation se dirige faiblement vers les catégories inférieures et chez les filles vers celles supérieures, mais avec des fréquences plus petites.

Tableau 2

La variabilité staturo-pondérale chez les enfants avec déficience de la vue (7-17 ans)

Caractère	Sexe	N	< M - 2σ		< M - σ		M ± σ		> M + σ		> M + 2σ	
			n	%	n	%	n	%	n	%	n	%
Stature	♂	89	6	6,74	9	10,11	59	66,29	13	14,61	2	2,25
	♀	46	2	4,35	8	17,39	31	67,39	5	10,87	-	-
Poids	♂	89	3	3,37	19	21,35	43	48,31	13	14,61	11	12,36
	♀	46	-	-	5	10,87	33	71,74	6	13,04	2	4,35
I. Rohrer	♂	89	3	3,37	12	13,48	45	50,56	13	14,61	16	17,98
	♀	46	1	2,17	6	13,04	27	58,70	6	13,04	6	13,04

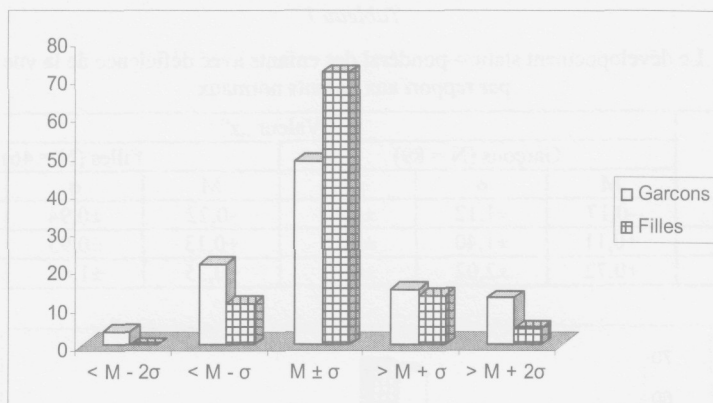


Fig. 2 – Variabilité du poids chez les enfants déficients par rapport aux standards nationaux (%).

1.3. L'indice Rohrer (Tableaux 1 et 2; fig.3)

Les enfants avec déficiences de la vue ont, moyennement, un bon accomplissement corporel. Dans une étroite corrélation avec les deux dimensions qui le compose (la stature et le poids), l'indice Rohrer est plus élevé, par les valeurs «z» moyennes chez deux sexes, mais pas significativement par rapport aux moyennes-étalon. Comparativement, les garçons déficients ont un meilleur accomplissement corporel que les filles. La courbe de variation phénotypique est pourtant semblable chez les deux sexes, la plupart des phénotypes en encadrent dans la catégorie « $M \pm \sigma$ ». Chez les garçons la courbe se dirige un peu plus accentué vers les catégories supérieures.

Tableau 3

Variabilité des indices de nutrition chez les enfants avec déficience de la vue

1. Indice Quetelet		Catégories de variation							
		Insuffisance pondérale		Normalité		Excès pondéral			
						Suprapondéral		Obésité I	
		n	%	n	%	n	%	n	%
Garçons	N = 89	51	57,30	29	32,58	8	8,99	1	1,12
Filles	N = 46	25	54,35	19	41,30	1	2,17	1	2,17

2. Indice Rohrer		Hypotrophie		Subeutrophie		Eutrophie		Sureutrophie		Hypertrophie	
Garçons	N = 89	52	58,43	14	15,73	10	11,24	6	6,74	7	7,87
Filles	N = 46	18	39,13	13	28,26	11	23,91	4	8,70	-	-

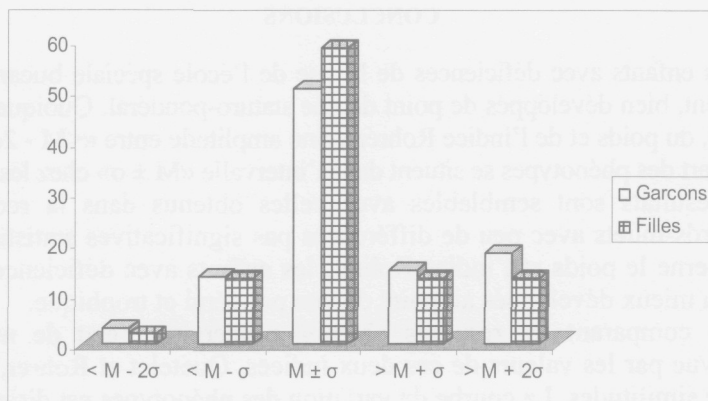


Fig. 3 – Variabilité de l'indice Rohrer chez les enfants déficients par rapport aux enfants normaux (%)

2. La variabilité de l'état de nutrition des enfants déficients selon les échelles de variation des indices Quetelet et Rohrer (Tableau 3)

2.1. L'indice Quetelet

Les enfants écoliers avec déficiences de la vue enregistrent sur l'échelle de variation de l'indice Quetelet une prédominance des phénotypes staturo-pondéraux dans la catégorie de l'insuffisance pondérale, chez les garçons à une fréquence un peu plus élevée (57,30:54,35%). Dans les catégories qu'illustrent l'excès pondéral, il y a peu de cas et ceux s'inscrivent dans les premières catégories (suprapondéral-préobésité et obésité I), où les garçons enregistrent une fréquence plus élevée (10,11%), surtout pour les phénotypes surpondéraux, par rapport aux filles.

2.2. L'indice Rohrer

Chez les deux sexes prédominent les phénotypes qui s'inscrivent dans la catégorie hypotrophie mais chez les garçons par rapport aux filles, la fréquence des cas hypotrophiques est plus élevée (58,43:39,13%). Si nous réunissons les trois catégories de hypo -, eu - et sureutrophie et nous les considérons une classe de normalité de la trophicité, on distingue nettement une différence entre les deux sexes, en faveur des filles, dont enregistrent une fréquence très élevée (60,87%) par rapport aux garçons (33,71%). Mais si nous apprécions la sureutrophie et hypertrophie comme des catégories d'excès pondéral, on observe que les garçons dépassent les filles (14,61:8,70%) et, en plus, chez les filles nous trouvons des phénotypes qui dépassent la plénitude corporelle normale (eutrophie) seulement dans la catégorie sureutrophie (8,70%), tandis que chez les garçons s'enregistrent des phénotypes sureutrophiques (6,74%) et hypertrophiques (7,87%).

CONCLUSIONS

1. Les enfants avec déficiences de la vue de l'école spéciale bucarestoise sont, moyennement, bien développés de point de vue staturo-pondéral. Quoique la variation de la stature, du poids et de l'indice Rohrer a une amplitude entre «<M - 2σ» et «>M + 2σ», la plupart des phénotypes se situent dans l'intervalle «M ± σ» chez les deux sexes.

Les résultats sont semblables avec celles obtenus dans la recherche des enfants sourds-muets avec peu de différences pas significatives statistiquement en ce qui concerne le poids et l'indice Rohrer, les enfants avec déficiences de la vue étant un peu mieux développés au point de vue pondéral et trophique.

2. En comparant les résultats obtenus concernant l'état de nutrition des enfants de vue par les valeurs de ces deux indices, Quetelet et Rohrer, on observe une série de similitudes. La courbe de variation des phénotypes est dirigée, dans les deux cas, vers un accomplissement corporel insuffisant, contrairement avec les résultats obtenus par la comparaison des enfants déficients avec les enfants normaux de Roumanie et de Bucarest. Par les deux indices, Quetelet et Rohrer, les garçons dépassent les filles, chez ceci en trouvant plus de cas (%) d'insuffisance mais aussi d'excès concernant l'état de nutrition.

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KNOWLEDGE AND PRACTICE REGARDING SEXUALLY TRANSMITTED DISEASES ON A SAMPLE FROM AN URBAN MILIEU

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This is an epidemiological transversal and evaluative study carried on a test sample of 1859 subjects randomly selected from 8 representative cities. The objectives were to evaluate knowledge and practices concerning avoiding infestation with sexually transmitted diseases (STD) and HIV/AIDS and perception concerning personal infestation risk, in a population from urban milieu. Research results through the Chi square test emphasized the following significant statistical difference ($p < 0.05$): women have more knowledge and are more interested in STD; men reported more frequent gonorrhea (89.5%) women reported Trichomonas (83.7%) and Candidosis (81.1%). Overall is observed the high percentage of correct answers concerning AIDS contamination sources, only that we must point out that there are still present false conceptions that a person can contract this disease through kissing or WC.

OBJECTIVES

The evaluation of the knowledge and practices of avoiding infestation with sexually transmitted diseases (STD) and HIV/AIDS and perception concerning personal infestation risk, in a population from urban milieu.

MATERIAL AND METHOD

This epidemiological transversal and evaluation study was carried on a sample of 1859 subjects randomly selected from 8 representative cities: Târgu Mureș, Timișoara, Baia Mare, Iași, Constanța, Ploiești, Craiova and Bucharest. We individually applied a complex questionnaire in order to estimate sexual behavior, life pattern and demographic data, with an equal casting on sex, age and level of scholastic preparation. Data were statistically processed with SPSS software.

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INTRODUCTION

A series of affections can be transmitted by sexual intercourse, with major discomfort, with acute or/and chronic evolution, with possible complications, terato and cancerous effect and with psychological repercussions: sexually transmitted diseases (STD). The incidence of these affections in Romania is relatively high against European countries and is registered a diminished addressability of the affected ones towards physicians and, as a result, an emphasized dissemination in focus (Clark JK *et al.*, 2003, Feroli KL *et al.*, 2003, Gallup-Black A. *et al.*, 2004). The decreasing age at sexual activity debut, the increased number of sexual partners, higher age at marriage as well as the importance granted to sexual life, increase the risk of STD on grounds of lack of protection and information.

An increased number of occasional sexual intercourse, with unfamiliar people, make more difficult to carry on a correct epidemiologic inquiry; the infection source is not discovered in time, a fundamental action in order to stop the phenomena of quick extension of sexually transmitted diseases (Holmes KK *et al.*, 2004, Ivancic-Doucette K *et al.*, 2004, Marcu L., Paunescu B., 2004).

In first step in treating sexually transmitted diseases is the medical consult and correct diagnosis. Neither empiric treatment nor consulting unofficial information sources, incorrect most of the times, are recommended. In the first phase the physician can be a family doctor who shall send the patient to a specialist in dermato venereal diseases, as per analyses shall apply the proper treatment. This treatment must be sustained on the entire recommended period, even if symptoms disappear, and the sexual act can be resumed after 3 days from the treatment cessation in accordance with the specialist's recommendations.

Just as the name says, sexually transmitted diseases are infections that can be transferred from a person to another through sexual contact. Most of them are treatable. Yet, even gonorrhea, formerly easy to treat, became treatment and classic antibiotherapy proof, and other affections like herpes, AIDS and genital polyp, caused by viruses, cannot be cured. Some of these infections cause discomfort while others can be lethal. Syphilis, AIDS, genital herpes and hepatitis can cause death through complication. Many of these STD are risk factors for pelvic inflammatory disease, cervical cancer, and birth complications (Serbanescu F. *et al.*, 2001, Widdice L. *et al.*, 2005).

Expenses with sexually transmitted diseases are extremely high, both for self curing individuals, who are breaking the law, as well as for the official institutions who sustain free treatment for the sick ones. Sexually transmitted diseases may have severe consequences, especially in women, if not treated, emphasizing once more the importance of STD testing. For those reasons, education concerning

reproductive health and prevention are important (Sănătatea Reproduserii la Tineri, România, 1996, MMWR Surveillance Summaries, 2003).

The purpose of this study was to evaluate knowledge and practices regarding STD and HIV/AIDS prophylaxis, perception of personal infection risk, as well as erroneous conceptions about ways to transmit the HIV virus in a population from urban milieu.

MATERIAL AND METHOD

This epidemiological transversal and evaluative study was carried on samples of 1859 subjects randomly selected from 8 representative cities: Târgu Mureș, Timișoara, Baia Mare, Iași, Constanta, Ploiești, Craiova and Bucharest.

We individually applied a complex questionnaire in order to estimate the sexual behavior, life pattern and demographic data, with an equal casting on sex, age and level of scholastic preparation. Subjects between 15 and 75 years old were distributed on 3 educational groups (elementary, average and superior). No subjects involved in the medical area were comprised in sampling: physicians, hospital staff, midwives and so on. Data were statistically processed with SPSS software.

RESULTS AND DISCUSSIONS

1. SEXUALLY TRANSMITTED INFECTIONS

In our sample 90.58% of the subjects started their sex life.

Subjects were asked whether they heard about and if they have been treated for seven STD. Most familiar STDs were syphilis and gonorrhea and the most unfamiliar was Chlamydia (table 1).

Table 1

Subjects who heard about and/or have been treated for sexually transmitted diseases

STD	Heard about %	Have been treated %
Syphilis	94.6	0.6
Gonorrhea	73.4	3.1
Trichomonosis	53.9	5.6
Genital Vegetation	46.4	0.8
Genital Herpes	66.1	1.0
Candida	63.3	13.4
Chlamydia	35.0	1.1

A significant percent reported that they have heard about, decreasingly: genital herpes, Candidosis, Trichomonosis, genital vegetation, higher figures than the ones obtained in anterior studies (Clark JK *et al.*, 2003, Gallup-Black A. *et al.*, 2004).

Distribution of the respondents that have heard about sexually transmitted diseases show significant differences on sexes ($p < 0,05$), regarding some STD; women are more informed and more interested in these affections than men (Figure 1).

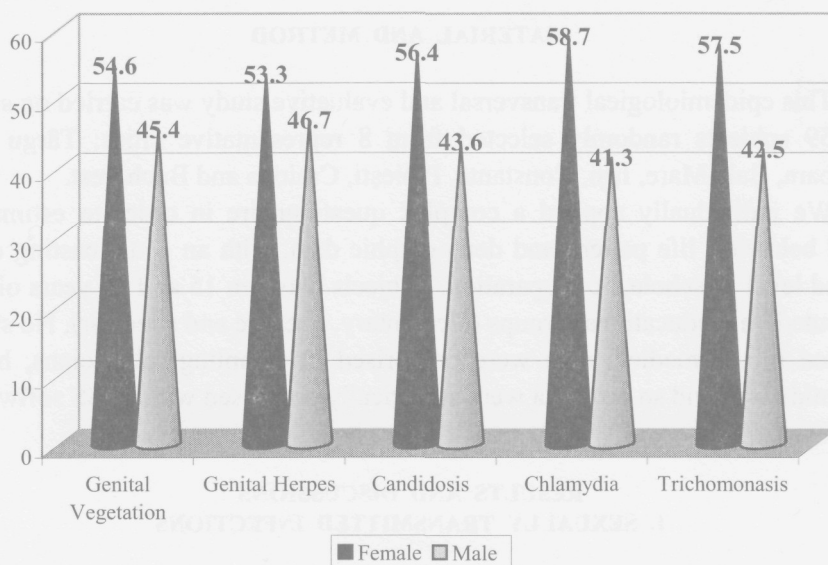


Fig. 1. – Subjects who have heard about sexually transmitted diseases, on sexes.

Unmarried people and individuals under 24 years old have the lowest knowledge level. The knowledge level regarding STD also scales up with increasing educational and socio-economic levels. Interviewed persons who have been treated of sexually transmitted diseases are in a low percentage: only 0.6% among the ones questioned were treated of syphilis, 3.1% of gonorrhea, 5.6% of Trichomonosis, and the majority is represented by those treated of Candidosis – 13.1% (Table 1). Certainly the answers must be regarded with the reserve of prestige reaction; it is possible that the real weight of the treated ones is higher. On the other hand, even the statistics on STDs' incidence and prevalence based on physicians' reports doctors do not reflect the real phenomenon in population because many times STDs are asymptomatic or with unspecific symptoms and infected persons are not always aware they are infected.

Significant statistical differences have also been recorded on sex and on affections ($p < 0.05$), among subjects who have stated they have been treated of at least one disease with sexual propagation. Gonorrhea prevailed in men (89.5%), and Trichomonas (83.7%) and Candidosis (81.1%) in women (figure 2).

Discrepancies stood out between investigated towns regarding the most frequent affections encountered (Candidosis, Trichomonas and gonorrhea) without the chi square test to indicate significant differences. For instance, cases with gonorrhea and Candidosis were more numerous in Târgu Mureş (26.3% and 18.1% of local subjects have been treated) and less frequent in Constanţa (5.3% and 6.6%)

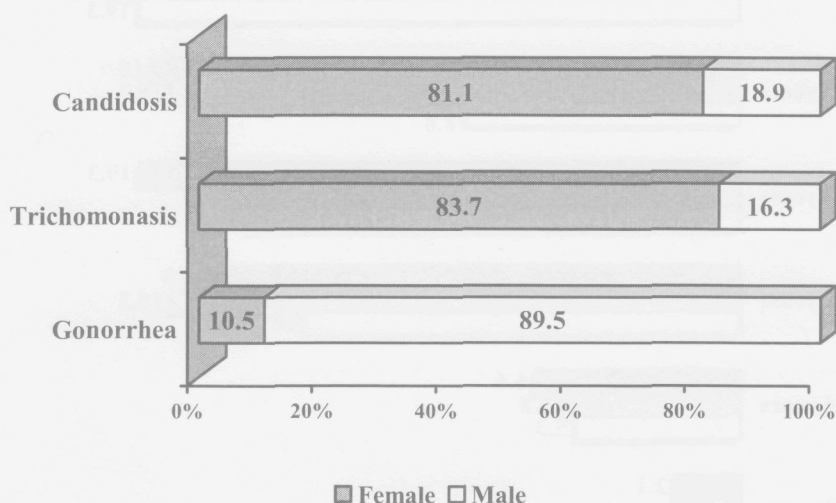


Fig. 2. – Subjects treated of sexually transmitted diseases, on sexes.

Age distribution of subjects treated of sexually transmitted diseases point out a highly accentuated rate in adults (25–50 years) vs. young people who have access to condoms and sex education received in school and older subjects who have a diminished sexual activity and lack of condoms before '89. We must consider that adults today have more sexual experiences than elderly before 1989 and therefore to be more exposed.

Aside from gonorrhea which has a fluctuant evolvement from one age to another and without a certain pattern, both Candidosis and Trichomonas – as treated illnesses, have a peak in young ages (between 15 and 19 years with an

average of 1.5% and an average of 17.1% around 29 years), followed by a ceiling at the 40-49 years age group and a decreased frequency around 60 years (6.6%), as a result of diminished sexual activity (figure 3).

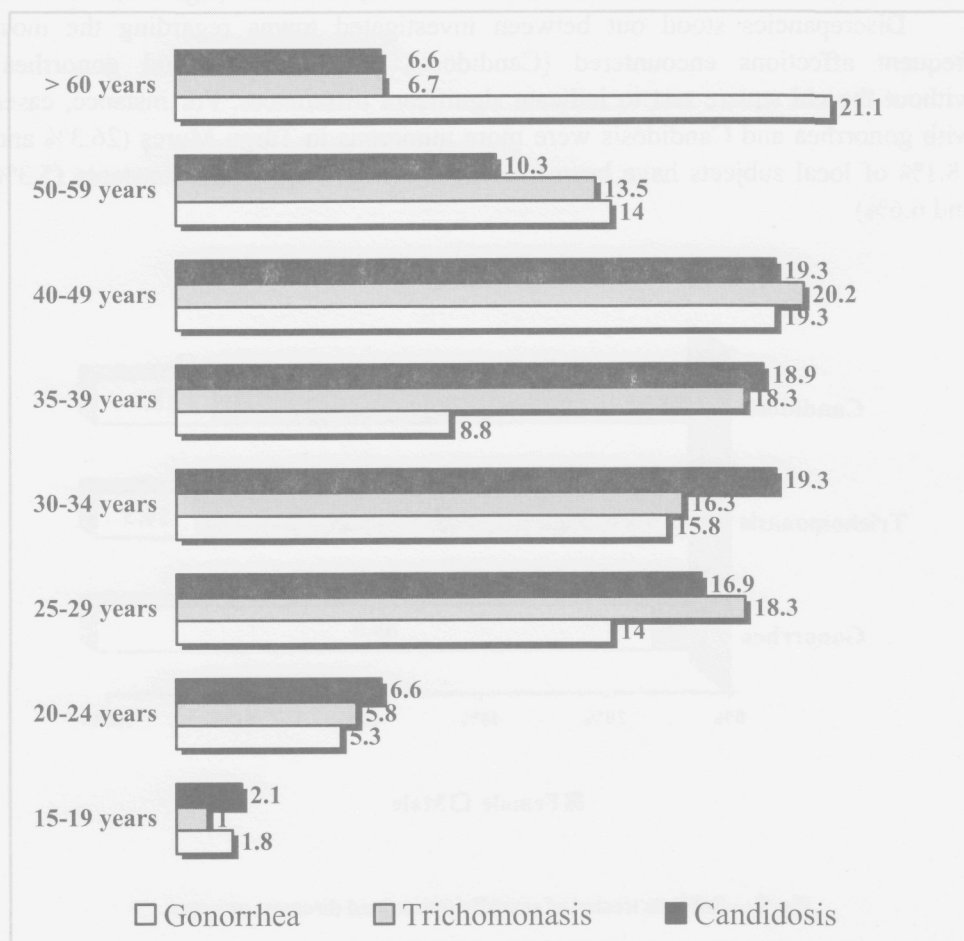


Fig. 3. – Subjects treated of sexually transmitted diseases, on age groups – Percents.

2. KNOWLEDGE ON HIV/AIDS PROPHYLAXIS AND SPREADING

Regarding HIV/AIDS infection we notice a raised weight of people with sufficient knowledge on this disease (an average of over 99%), a result of sustained mass-media campaigns addressing this severe malady; optional sexual education courses were introduced in schools, internet is much more accessible (Table 2).

Table 2

Enunciated HIV/AIDS spreading methods

HIV is transmitted through	No %	Yes %
WC	93.9	6.1
Bath	95.1	4.9
Kissing	84.9	15.1
Embrace, intimate touch	89.1	10.9
Insect bite	74.1	25.9
Heterosexual intercourse	17.8	82.2
Homosexual intercourse	11.7	88.3
Transfusions	4.9	95.1
Aseptic needles	5.5	94.5
From mother to fetus	13.4	86.6

The main infesting risk factors known are transfusions (95.1%), aseptic needles (94.5%), homosexual (88.3%) respectively heterosexual intercourse (82.2%), with significant increases as compared to studies carried out in 2004. Even so, a lot of subjects supplied incorrect answers. A set of questions with predefined answers evaluated knowledge level of HIV infestation prophylaxis and erroneous conceptions about HIV propagation.

Statistical processing of incorrect answers with chi test points out significant differences on age groups ($p < 0.01$) in WC and bath spreading manner. Erroneous conceptions about HIV propagation through WC and bath have been present in a relatively low percentage (4.9%/6.1%). A quarter of the subjects interviewed mentioned that insect bites can propagate HIV, a figure to consider as lack of knowledge or misunderstanding.

An important variable that emphasizes significant differences in STDs' spreading cognition is **the level of education**. So the chi test shows significant statistical difference with $p < 0.01$ between subjects that followed elementary school and gymnasium and those with higher education (high school and college). As expected, greater weight in erroneous answers is present in subjects with a low level of education. Among those who wrongfully appreciated that AIDS is transmitted through WC and bath most of them have a low level of education (16.7%). Correspondence between educational level and misguided conceptions about HIV/AIDS spreading is significant for ones with a low scholastic level (elementary school and gymnasium) with an average weight of 15% correct answers. At the opposite pole, we find the ones who have superior education, a luggage of correct knowledge and based on a more detailed ground of information achieved in high school and university.

We have pursued further subjects' opinion concerning condom efficiency against STD (table 3). The majority have a correct perception on the protection offered by condom use: more than 90% men and women acknowledge that condom

use forefends HIV virus and other STD from spreading; respectively 84% of them sustained condom efficiency.

Still, 10% of the subjects who have no pertinent knowledge about condom use as a prophylactic method against HIV/AIDS contamination, a lower percent than the ones found in previous studies (Clark JK *et al.*, 2003, Gallup-Black A. *et al.*, 2004, Strategia națională HIV/SIDA, Ministerul Sănătății, 2004-2007). Among those who don't know about the condom efficaciousness against STD the highest weight is found in elementary and gymnasium educational groups (table 3).

Table 3

Opinions on condom efficiency against STD vs. instruction level

Condom Efficiency Against STD	Instruction level %					Total
	Elementary school	Gymnasium	High school	Post high school	University	
Less efficient	3.5	8.9	5.7	6.8	5.9	6.4
Efficient	47.7	32.8	38.4	38.3	43.3	39.4
Very efficient	30.2	38.8	46.2	44.1	47.4	44.2
I do not know	18.6	19.5	9.8	10.8	3.4	10.0

In order to emphasize the importance of sanitary and educational services in population welfare education we surveyed the weight of the **main information sources on STDs**. First source mentioned was doctors/sanitary personnel (with 35.8%) encouraging figure, succeeded by the category of friends/acquaintances (24% of them).

Last sexual intercourse protection contact is function of the marital status and age, with significant statistical differences ($p < 0.05$). In the present study condom use was three times more frequent among young, single people than those who were in a couple.

The sample's structure shows that 51.2% among the ones questioned were married or have concubines, 48.8% were unmarried, divorced, separated, widowers, 0.7% of the interviewees have not begun the sexual life, a smaller percent than in 2004. About two thirds of young manhood have reported premarital sexual experiences. Among the married ones, only 43.8% protected themselves on the last sexual intercourse as opposed the single ones (56.2%). The absence was motivated by the desire of having a child, infertility. These situations can be the cause of STD dissemination, excepting the elderly, inactive sexual persons and individual persons with a stable sex partner.

The dynamics of STDs incidence from the last decade is marked by syphilis' increasing incidence and the decline of gonorrhea (perhaps insubstantial for reasons of incomplete reports). We also remark the predilection affectation in

young men, from urban milieu, persons without job, unmarried, and people with casual sexual partners. An important role comes back to prophylaxis and control of those illnesses, by creating accessible networks of diagnosis and treatment for STDs, precocious ill identification, sources and contacts identification, proper treatment, associated with post-therapeutic surveillance.

Sexually transmitted diseases represent a major public health problem, fact that enforces the development of strategies in this area, concerning the prophylaxis, the diagnosis and the correct treatment of these affections, as well as elaboration of efficient managerial, informational and legislative system to implement those strategies (Holmes KK *et al.*, 2004, Ivancic-Doucette K *et al.*, 2004, WHO, 1996).

CONCLUSIONS

We have a good representation of urban population knowledge about sexually transmitted diseases, as the name, methods of transfer, source of information and preventive behavior. Yet there are individuals without sufficient knowledge in this area, especially the elderly and the ones with a reduced level of education.

The importance of sexual education in schools is highlighted in order to facilitate the precocious formation of informational luggage on STDs' prevention, of precocious presentation to a specialist, if necessary, correct attitudes of personal hygiene and protection, and knowledge in this area to all populational groups. The most important but also vulnerable categories to this flagellum are the teenagers, associated with their risk taking behavior.

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DERMATOGLYPHICS IN JUVENILE DELINQUENCY

ANA ȚARCĂ

Abstract. Aim. The author develops complete digital dermatoglyphic investigations, on the basis of a pathological perspective, on a group of delinquents from Moldova (North-East part of Romania). **Materials and methods.** The study was performed on a group of 105 teenagers and young delinquents with ages between 16 and 26 years, imprisoned in the Penitentiary of Iași, coming from different districts (the district of Iași, especially) of Moldova. **Results.** The main observation to be made is that the large range of reprobable actions committed by the delinquents, from robbery up to crime, is correlated with the presence – in their fingerprints – of some important malformative sketches (distortions or anomalies) bearing deep pathological significance. At the level of the whole sample, the frequency they record differs sensibly from that of the reference group of Moldova, being nevertheless situated between the values found out by the author in other severe brain disorders, such as autism, IEP and epilepsy. All these observations demonstrate that such anomalies had been formed as early as the pre-natal period, when the papillary ridges are also finished up, under the action of some hereditary or teratogeneous factors, while bursting of an aggressive behaviour from the part of their carriers occurs in post-natal periods, at different ages, earlier or later (in the case under study: at juvenile ages), as a function of the severity of the disorders having occurred at the brain level in the prenatal period and, equally, as a function of multiple external circumstantial (social, family) factors which they have to face. Most of the digital distortions here under analysis had been also evidenced on other European groups of delinquents, with the exception of two, namely: the extremely high ratio of the raketoid-type loops – on fingers IV and V, especially – and that of the bilateral and individual monomorphism, anomalies representing the personal contribution brought by the author to the list of digital dermatoglyphic indicators, for a precocious tracing of the persons risking commitment of severe offences, at least at the level of Moldova, the region from which the investigated subjects come.

Key words: digital dermatoglyphics, distortions or anomalies, pathology, juvenile delinquency.

INTRODUCTION

Defined as a social phenomenon assuming guilty commitment of offences or of some infringements of law causing prejudices, delinquency generally and the juvenile one – especially – has been largely extended at national scale, but not only, being present both in the urban and in the rural areas. Under such

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circumstances, the question arises whether this deviation from the normal behaviour and conduct, dominated by strong impulses favouring fraud, theft, aggressiveness, violence, murder or even suicide, is exclusively the result of some negative influences, exercised by evil-doers upon the youngsters whose company they share, of some precarious living conditions of their families, of the difficulty of finding a decent job, etc., or whether the subjects under discussion have an abnormal psycho-genetic nature, with a malformed biological structure, manifested in a peculiar ill-behavior, inherited from one parent or another. In this last case, such a divergent behaviour is manifested also in parents, brothers, and even uncles, aunts and cousins. Starting from such considerations and knowing that the dermatoglyphics are among the quite few human morphological characteristics possessing a strong and well-established heredity, the complex picture of which illustrates, in a most suggestive manner, not only the normal, but also our abnormal structural, physiological and neuro-psychic condition, the author developed a study on such problems, considering a group of delinquent teenagers and young people from Moldova.

Dermatoglyphic examination, even if not capable of providing an exact diagnosis, may establish, without any doubt, whether the person under analysis is a normal or an abnormal (from a genetic or embryopathic perspective) subject (*i.e.*, a biopsychic infirm person).

Dermatoglyphic investigations have been already developed on various categories of European groups of delinquents (5, 7): Italian, German, Spanish and even Romanian ones, by the reputed specialist Țurai (16). Although involving groups unsufficiently well-represented from a statistical perspective, such studies put into evidence the occurrence – in the delinquents' dermatoglyphic picture – of some important – even if quite few – malformative sketches, seen as directly correlated with their deviating personality and behaviour. More than that, it was the merit of Țurai who discovered the relation between the complex dermatoglyphic structures of the corpses of some aggressive persons, dominated by irrepressible instincts, and the intricate labyrinth of their brain circumvolutions, with extremely different ditches and ridges, by their minute peculiarities, as the papillary epidermal ridges (16). In the case of delinquents, the dermatoglyphic test is especially important, either as a complementary examination for psychiatric medico-legal expertises, as it may estimate the limit at which the normal is replaced by a pathological behaviour, or as an independent study, for the diagnosis of the origin of some various – hereditary or teratogeneous – neuro-psychic disorders. Considering the recent advances recorded in the field (1, 3, 4, 6) and performed quite a large time interval since the first investigations on the topic (16), the present study is oriented towards the discovery of new indicators for a dermatoglyphic diagnosis of delinquency which, along with those already known and applied in the literature (6, 7, 8), might be utilized as “markers” in the screening methods for a precocious tracing of the persons risking a divergent behaviour.

MATERIALS AND METHOD

In the summer of 2006, there have been dermatoglyphically investigated – through finger-printing – a total number of 105 teenagers and youngsters – all boys – from the Penitentiary of Iași, with ages between 16 and 26 years, coming from various Moldavian districts, most of them from the Iași district. In parallel with the finger-printing operations, an individual inquiry was developed on the causes of detention and on its possible occurrence in relatives (brothers, parents, grandparents, uncles, aunts, cousins, etc.). The investigation showed that most of the delinquents (about 80%) are imprisoned for robbery and banditry, including a large range of blamable facts, such as: stealing of money, wallets, bags, mobile phones, jewels, wood, iron wastes, etc., or robbery in stores, houses, cars, etc.; 12.38% of them are accused of having attempted murder – either alone or with abettors – deliberate murder or especially grave murder; 4.76% of them – with ages between 17 and 18 – are imprisoned for indecent assault and sequestering, the remaining 2.86% being accused of illegal trespassing of the border, and drug or persons traffic. The same inquiry showed that in the robberies committed, and not only, in 50 (*i.e.*, 47.62%) of the whole number of delinquents there are also involved close relatives, from the part of one or both parents, many of them being still imprisoned or registered as recidivists, other being free, gaining from the assumption of innocence, which indicates that delinquency is inherited. For the rest of the evil-doers, the deviations from a normal behaviour, with all peculiarities involved, may be the results of some brain disorders caused by certain teratogeneous factors, acting at the level of mother's uterus in the first 3-5 months of intra-uterine life (when the papillary ridges are actually formed), which, nevertheless, have the advantage of not being transmitted to future generations – as in the case of the hereditary forms of delinquency.

No matter which is the form of delinquency – be it hereditary or embryopathic – the persons affected by it evidence a socially-unadaptable, impulsive, not real, psychic biotype, with obvious signs of the intelligence's and personality's disintegration, capable of producing serial offences, characterized by excessive aggressivity, sometimes up to extreme brutish actions – in other words, a biopsychically-infirm person.

As, at the group level, the dermatoglyphic distortions or anomalies represent deviations in the frequency of some dermatoglyphic characteristics from the values recorded in the apparently normal populations from which the bearing subjects come (7, 10, 16), a comparative analysis was made between the results obtained for the whole group under study and those recorded on a sample from Moldova (10). Also, with a view to demonstrate that the dermatoglyphic anomalies evidenced in juvenile delinquency express graphically some structural and functional disorders at brain level, the results obtained have been compared with those, found out by the same author, on other groups, affected by major disorders of the central nervous system, such as: autism (14), epilepsy (13) and infantile encephalopathies (IEP)

(15), which permitted a correct estimation of the extent to which delinquency is present in the dermatoglyphic behavior of these maladies.

For all anomalies put into evidence, their distribution as a function of laterality, as well as on the whole, has been considered, alongwith their succession of distribution on the 5 – cumulated – fingers of the two hands. The working methods applied are the ones currently employed in studies of populational pathological dermatoglyphics (4, 7, 11, 12, 16).

RESULTS AND DISCUSSION

Individual analysis of the dermatoglyphic files showed that, at the level of **the digital picture**, the one actually considered in the present study, - regardless of the age at which the offence had been committed, of its rare character or of its inherited or teratological form, the young and teenager delinquents evidence important distortions or malformative sketches bearing deep medical significance (4, 7, 8, 12), part of them evidenced, too, other European groups of offenders (1, 2, 5, 16). At the level of the whole sample under study, such anomalies record average ratios extremely different from those of the reference sample, being nevertheless more or less close to those records by the author in epileptics, autists or persons affected by sekelary IEP (13, 14, 15), maladies producing severe disorders also at the level of the central nervous system (table 1), which is also the case of delinquency.

A first digital anomaly, reported also by Țurui (16) and, once more, on other European series of offenders (1, 2, 7, 8) refers to ***the sensible increase of the frequency of whorls (W) on fingers***, on the average up to 36.95% *versus* only 27.5% - in the reference sample, which is practically a value equal to that recorded by the author in IEP (36.80%).

Similarly with the reference batch or with the groups of brain-affected patients, employed for the sake of comparison, W is prevailing on the carriers' right hand, especially on finger I and IV, followed by II > III > V. ***Increase of the weight of W induced a substantial diminution of all the loops (L)*** up to 57.71% *versus* 71.00%, the normal value, which is quite close to that of the IEP (56.10%) and epilepsy (56.86%), affected subjects, appearing also as a significant digital distortion. Such a decrease in the L percent value is more pronounced on the right hand of the delinquents, similarly with the last two mentioned maladies or with the reference sample of Moldova (table 1).

An extremely rare malformative stigmat present in normal people (0.20%), yet quite frequent in various European groups of criminals and delinquents (2, 6, 8) – the Romanian series investigated by Țurui included – as well as in the group of delinquents now under study, refers to ***the tendency of occupying the same digital compartment by two fused patterns, evidencing a complex structure, of the twin loops(TL–or lateral pockets (LP)-type***. The average frequency recorded in the

delinquents of Moldova is more than double *versus* the one registered for autists, epileptics or persons affected by sekulary IEP. Nevertheless, in all cases, such structures are more frequently met on the carriers' left hand, especially on fingers I and II, followed – in the decreasing order of the values – by fingers III, IV and V.

A digital anomaly whose malformative effects upon the carriers may be compared with those induced by the reversion of the normal position of the internal organs refers to ***the radially of the digital structures considered as a whole (A + L + W)***. It assumes changing of the ulnary or cubital orientation of the digital patterns, which is usually of priority, with their orientation in radial direction. Quite rarely occurring in the reference series (2.85%), in the sample under study radially attains an average ratio of 9.71%, a value situated between that of the autists (7.01%) and of epileptics (13.10%), being closer to that of the subjects affected by sekulary IEP (11.30%). Similarly with the reference batch or with epilepsy and IEP, the radial orientation is more frequently met on the right hand, mention being nevertheless made of the fact that, in the series of delinquents here under study, the bilateral differences suggest only a tendency towards this direction. Table 1 also shows that, out of the 5 cumulated fingers, radial orientation is more frequent on fingers II and III as, actually, in all the other affections analyzed for the sake of comparison, the following three positions of the scheme of distribution on fingers being identical with the ones present in IEP and epilepsy (IV > I > V). For the following two digital anomalies put into evidence in the present study, worth mentioning is that they are not present in the literature of the field, not even in the analyses of Țurui (16) on Romanian offenders. The former assumes ***a very high incidence of the racketoid-type loops***, a pattern missing in the reference sample while, in the delinquents under study, it attains an average ratio of 9.52%, a value exceeding the ones recorded in the major brain affections considered for comparative investigations.

The bimanual differences suggest a tendency towards somewhat higher ratios of this distortion on the left hand, to be also observed exclusively in the sekulary IEP-ies to which the delinquents are most close.

As to the succession of the distribution – on fingers – of the racketoid loops, their prevalence was noticed on fingers IV and V – which is also the case of the other brain affections under analysis – although, for the following 3 positions of the scheme, some insignificant reversions had been observed, finger I appearing the last as to frequency, with the exception of autism (table 1).

Finally, the following malformative sketch put into evidence by the author in juvenile delinquency, yet not the last possible one, bearing severe pathological significance for its carriers (7, 11, 12) is ***the very high incidence of the bilateral – and, especially, of the individual monomorphism*** (table 2). As shown in table 2, in the case of the left hand and individual monomorphism, the series here under investigation records percent values practically equal to those recorded in sekulary IEP-ies, yet without neglecting the relative closeness to the values registered for the other two major brain affections. Table 2 also shows that both the delinquents

and the persons affected by severe brain disorders – the ones affected by epilepsy, excepted – are significantly different from the reference series, both in the values recorded for the left- and right-hand monomorphism, and in the individual monomorphism (which is also the previously discussed anomaly), which demonstrates, once more, that all of them had been formed in the pre-natal period, when the epidermal papillary ridges are also finalized, being interpreted as signals of the disorders manifested at the level of the central nervous system, known as responsible for one's individual behaviour and personality.

CONCLUSIONS

The study of digital dermatoglyphics in the young and teenagers offenders coming from Moldova led to the conclusions that, regardless of the age at which the deed had been committed or of its complexity, it is sketched in the person's fingerprint by severe and important distortions or anomalies bearing deep clinical significance, the frequency of which – at the level of the whole group taken into study – is close to, equal, or it even exceeds the frequency recorded for subjects affected by other major brain disorders (such as autism, sekelary IEP-ies, epilepsy), being nevertheless sensibly different from that of the reference sample from which they come. This demonstrated that the causal factors responsible for the diverging behaviour of the delinquents, be they of either genetic or teratological nature, have acted upon the nervous system as early as the intra-uterine period, when the epidermal papillary ridges and – implicitly – the distortions now under analysis, have been formed.

As to the beginning or releasing of an aggressive behaviour as such, manifested in a special way of reacting of the persons bearing such malformative sketches, it occurs during the post-natal life, in our case in adolescence or youth, under the impulse of a multitude of circumstantial factors of family, social or personal nature, the severity of the offence depending, however, on the degree of affection of the nervous system early in the pre-natal life.

Present on both the left and right hand of the delinquents, each one with a preferential arrangement on the 5 cumulated fingers, most of the digital anomalies signaled out in the present study (namely: a higher frequency for **W**, more intense on the right hand and on fingers I and IV; a sensible diminution of the weight of **L**, again preferentially on the right hand, with most of its values on fingers V and III; a higher incidence for the structurally-intricate patterns, especially on the left hand and on fingers I and II, and a much higher frequency *versus* the normal values for the radial orientation of the digital patterns instead of the ulnar one, especially on fingers II and III and in practically equal ratios on the two hands, have been found out, too, on other European – Romanian ones, included – batches of offenders.

Besides the above-mentioned ones, the author of the present study has evidenced two other distortions – the medical implications of which are well-known (4, 7, 16), referring to a ***much higher incidence, comparatively with the***

normal situation, of the racketoid-type loops, especially on fingers IV and V, in similar ratios on both hands, as well as **a very high frequency of the bilateral and individual monomorphism**. They represent the author's contribution to the investigations meant at enriching the pathological elements permitting a precocious diagnosis of the persons risking to commit offences, elements which – together with those occurring at palm's level (to be analyzed in a separate study) - might be employed as “markers” in screening of juvenile delinquency at population level, at least in Moldova, the area from which the subjects under investigation come.

Table 1

Comparative data on the frequency and succession
of the digital distortions on fingers

Digital distortions	Delinquents, other affected people and reference batch	Left hand	Right hand	Left + right	Succession of the arrangement on the five cumulated fingers
L on total fingers	Delinquency	61.52	53.90	57.71	V > III > IV > II > I
	Autism	55.52	66.86	61.19	V > III > IV > II > I
	IEP	60.00	52.20	56.10	V > III > I > IV > II
	Epilepsy	59.60	54.12	56.86	V > III > IV > II > I
	Reference batch	81.00	61.0	71.0	V > III > I > IV > II
W on total fingers	Delinquency	33.33	40.57	36.95	I > IV > II > III > V
	Autism	28.66	29.25	28.95	I > IV > II > III > V
	IEP	33.20	40.40	36.80	IV > I > II > III > V
	Epilepsy	27.84	34.12	30.59	I > IV > II > III > V
	Reference batch	23.50	31.50	27.50	I > IV > V > III > II
Structurally intricate patterns LP, CP, TL, etc.	Delinquency	5.33	3.05	4.20	I > II > III = IV > V
	Autism	2.68	0.30	1.50	I > II = III = IV > V
	IEP	2.40	1.40	1.90	I > II > III > IV > V
	Epilepsy	2.70	1.20	1.90	I > II > III > IV ≥ V
	Reference batch	0.30	0.10	0.20	I > II > III > IV > V
Raketoid type loops	Delinquency	9.90	9.14	9.52	IV > V > II > III > I
	Autism	8.55	8.95	8.65	IV > V > II > I > III
	IEP	9.60	7.40	8.50	IV > V > III > II > I
	Epilepsy	5.88	7.45	6.66	IV > V > III > II > I
	Reference batch	–	–	–	–
Radiality of the digital structures	Delinquency	9.52	9.90	9.71	II > III > IV > I > V
	Autism	10.14	3.90	7.01	II > IV = I > III > V
	IEP	8.60	14.00	11.30	II > III > IV > I > V
	Epilepsy	9.40	16.80	13.10	II > III > IV > I > V
	Reference batch	1.60	4.10	2.85	II > III > II > I > IV

Delinquency (No = 105)

Autism (No = 67): Ana Țarcă 2001

IEP = infantile encephalopathies (No = 100): Ana Țarcă 2003

Epilepsy (No = 51): Ana Țarcă 2002

Reference batch (No = 100): Ana Țarcă 1995

Table 2

Comparative data on the frequency of the bilateral (left- and right- handed) and individual monomorphism

	Monomorphism		
	Left-handed	Right-handed	Individual
Delinquency (No = 105)	31.42	23.80	14.28
Autism (No = 67)	21.00	26.86	8.95
IEP sechelary (No = 100)	32.00	27.00	14.00
Epilepsy (N = 51)	25.49	11.76	3.92
Reference batch (N = 100)	15.50	9.00	4.00

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LA STRUCTURE ANTHROPOLOGIQUE DE LA POPULATION DE NĂMOLOASA ET COROD (DÉPARTEMENT DE GALAȚI)

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The anthropological structure of the Nămoaloasa and Corod population. This is the result of an "atlas-type" research, having as main objective the completion of the anthropological picture of South Moldavia population. The present data will contribute to structure a new volume of the Romanian Anthropological Atlas. The survey conducted upon two villages in the Galați county (148 subjects in Nămoaloasa and 155 in Corod) highlights the resemblances regarding the cephalo-facial conformation, height, weight and pigmentation with the previously studied populations from contiguous zones as North-East Muntenia region.

Les recherches anthropologiques entreprises dans les deux localités situées au sud-ouest et vers nord du département de Galați s'inscrivent dans le programme vaste de réalisation de l'«Atlas anthropologique de la Roumanie», plus exactement, d'un des volumes de cet ample travail, l'«Atlas anthropologique de la Moldavie».

À la sélection des personnes étudiées on a tenu compte qu'elles soient depuis au moins trois générations établies dans les localités Nămoaloasa et Corod et qu'elles aient l'âge entre 20 et 60 ans. Ainsi, on a obtenu deux échantillons composés de 148 sujets (75 hommes et 73 femmes) à Nămoaloasa et 155 sujets à Corod (93 hommes et 62 femmes) résultant finalement un total de 303 sujets des deux sexes. On a effectué sur chaque personne un nombre de 9 mesurages céphalo-faciaux et 5 corporels sur la base desquels on a calculé 12 indices de conformation. Pour chaque paramètre on a établi la valeur moyenne correspondante tant chez la série masculine que chez la série féminine. Selon ces moyennes on a élaboré deux morphogrammes qui comprennent la position des dimensions et des indices principaux par rapport aux échelles de classification universellement admises.*

* Le remaniement statistique et l'arrangement à l'aide de l'ordinateur ont été assurés par Monica Petrescu.

LES CARACTÈRES DE LA CALOTTE CÉPHALIQUE

Dimensions. En examinant les principales dimensions céphaliques, exprimées par leurs valeurs moyennes, on constate une faible tendance vers l'augmentation, notamment par suite de l'élargissement du front (catégorie très large), du diamètre antéro-postérieur (légèrement long chez toutes les séries) et du diamètre vertical (légèrement haut chez la population de Nămolosa); chez les deux séries (hommes et femmes) de Corod ce dernier paramètre ne dépasse pas les limites de la classe moyenne. De plus, l'élargissement de la calotte se maintient entre les limites de la catégorie moyenne, tant à Corod qu'à Nămolosa (Tableaux 1,2).

La répartition des valeurs individuelles dans les échelles de classification indique pour le diamètre antéro-postérieur des valeurs calculées en pourcentages avec prépondérance pour la catégories des crânes longs, mais aussi pour celles moyennes chez toutes les séries, tandis que le diamètre transversal est plus fréquemment trouvé dans la catégorie moyenne mais aussi dans celle large. Pour le diamètre vertical les répartitions en pourcentages indiquent des tendances opposées chez les deux populations – d'augmentation de la hauteur céphalique à Nămolosa et de maintien entre les limites de la classe moyenne à Corod – une situation mise en évidence par le mode de répartition des fréquences dans les deux catégories – haute et moyenne. La largeur du front enregistre les fréquences les plus élevées pour la catégorie plus large (Tableaux 3,4).

Indices. La valeur moyenne de l'indice céphalique illustre une légère brachycéphalie chez toutes les séries mais avec une faible tendance d'augmentation de la valeur chez les hommes par rapport aux femmes (Figs. 1,2). La position de cette moyenne est soutenue aussi par la répartition des valeurs individuelles, prépondérantes dans ces deux classes – brachycéphalie et mésocéphalie (Tableaux 3,4).

L'indice vertico-longitudinal moyen est situé, généralement, à la limite supérieure de l'hypsicéphalie modérée mais aussi à la limite inférieure de l'hypsicéphalie moyenne (les femmes de Nămolosa). Le placement de cette valeur moyenne entre les limites de ces deux classes concorde aussi avec la répartition en pourcentages où les fréquences les plus élevées se retrouvent dans la catégorie hypsicéphalie modérée suivies par celle d'hypsicéphalie moyenne (Figs. 1,2, Tableaux 3,4).

L'indice vertico-transversal s'inscrit, par les valeurs moyennes, dans le centre de la classe métriocéphale (la population de Nămolosa) et dans la moitié inférieure de la même classe (la population de Corod). Les valeurs individuelles du cet indice exprime une concentration accrue des fréquences dans la catégorie métriocéphale (approximativement 60% chez toutes les séries) suivie à distance par la classe acrocéphale à Nămolosa et la classe tapéinocéphale à Corod (approximativement 30%) (Figs. 1,2, Tableaux 3,4).

Par rapport à la largeur du crâne, la largeur minimale du front s'inscrit par les valeurs moyennes de l'indice fronto-pariétal à la limite inférieure de la classe hypereurymétope. Les femmes de ces deux localités ont une moyenne plus grande

d'approximativement une unité d'indice par rapport aux hommes (Tableaux 1,2, Figs. 1,2). Cette position élevée de l'indice concorde aussi avec la répartition des valeurs individuelles prépondérantes dans la classe hypereury métope, mais toutefois tempérée par les fréquences suffisamment élevées de la catégorie eury métope (chez les deux populations) (Tableaux 3,4).

En rapportant la largeur du front à la largeur faciale il résulte un indice fronto-zygomatique moyen qui correspond à la moitié supérieure de la catégorie large, qui tend vers la catégorie très large chez les femmes des deux localités (Tableaux 1,2, Figs. 1,2). Cette situation est mise en évidence aussi par la répartition des valeurs individuelles dans l'échelle de variation dont les plus nombreuses fréquences appartiennent à la catégorie des fronts larges, suivie à distance par la classe des fronts très larges (par rapport à la largeur de la face) (Tableaux 3,4).

LES CARACTÈRES DU MASSIF FACIAL ET DU NEZ

Dimensions. Le complexe associatif des dimensions faciales (tel qu'il est présenté dans les Figures 1,2) met en évidence la dominance de la position de la longueur (n-gn) par rapport à la largeur faciale représentée ici par un diamètre bizygomatique (zy-zy) d'un niveau de valeur un peu plus faible que la distance bigoniaque (go-go) (Figs. 1,2). Les valeurs moyennes de la longueur faciale se situent à la limite supérieure de la catégorie haute chez l'échantillon de Nămolosa tandis que chez la population de Corod ce paramètre se situe à la limite inférieure de la catégorie très haute. Cette position des valeurs moyennes, à la limite entre les deux catégories est illustrée aussi par la répartition en pourcentages, où les fréquences les plus élevées appartiennent à la catégorie des faces hautes et très hautes pour toutes les séries (Tableaux 3,4).

La moyenne de la largeur bizygomatique se situe dans le centre de la catégorie moyenne pour la population de Corod et dans la moitié inférieure de la même catégorie pour la population de Nămolosa (Figs. 1,2). La répartition des valeurs individuelles selon l'échelle de classification illustre une prédominance des diamètres bizygomatiques des catégories moyennes et étroites à Nămolosa et des catégories moyennes et larges à Corod, ce qui explique la position de la moyenne sur le morphogramme un peu plus élevée à Corod par rapport à Nămolosa (Tableaux 3,4).

Les valeurs moyennes du diamètre bigoniaque se disposent plus fréquemment à la limite inférieure de la catégorie grande, excepté les femmes de Nămolosa où ce paramètre se dispose à la limite supérieure de la classe moyenne (Figs. 1,2). Cette situation des moyennes à la limite entre les deux catégories est illustrée aussi par la répartition en pourcentages des valeurs individuelles plus fréquentes dans la catégorie de la mandibule large suivie par la classe de largeur moyenne (Tableaux 3,4).

Tableau 1

Les valeurs moyenne des caractères céphalo-faciaux et corporels chez les hommes de Nāmoloasa et Corod

Caractère	Nāmoloasa							Corod						
	N	min	max	X	σ	eM	CV	N	min	max	X	σ	eM	CV
g-op	75	173	203	186,75	6,00	0,69	3,21	93	172	202	187,00	6,63	0,69	3,54
eu-eu	75	138	171	153,31	5,51	0,64	3,59	93	139	168	153,90	6,38	0,66	4,14
ft-ft	75	103	126	115,72	4,55	0,53	3,93	93	104	125	116,57	5,10	0,53	4,37
t-v	75	117	139	126,51	4,53	0,52	3,58	93	111	134	124,02	4,77	0,49	3,85
zy-zy	74	127	153	138,84	5,33	0,62	3,84	93	131	153	140,77	5,36	0,56	3,81
go-go	75	100	128	111,08	5,95	0,69	5,36	93	99	124	111,06	4,85	0,50	4,37
n-gn	75	115	143	129,48	5,85	0,68	4,52	93	118	146	130,44	6,38	0,66	4,89
n-sn	75	51	70	60,73	3,88	0,45	6,39	93	51	70	60,10	4,34	0,45	7,22
al-al	75	30	42	34,84	2,37	0,27	6,80	93	28	40	33,89	2,81	0,29	8,29
v-sol	75	1546	1832	1678,20	62,80	7,25	3,74	93	1542	1860	1692,61	55,64	5,77	3,29
v-sez	75	818	999	892,55	35,55	4,10	3,98	93	805	964	895,95	29,70	3,08	3,31
L.m.i	75	699	890	785,65	38,63	4,46	4,92	93	687	902	796,67	38,20	3,96	4,79
Poids	75	52	100	69,39	9,17	1,06	13,21	93	53	91	68,63	8,92	0,92	13,00
eu-eu/g-op	75	73,23	90,00	82,19	3,18	0,37	3,87	93	72,14	92,78	82,38	3,97	0,41	4,82
t-v/g-op	75	60,10	73,80	67,78	2,62	0,30	3,86	93	60,73	74,44	66,33	2,77	0,29	4,18
t-v/eu-eu	75	75,47	88,44	82,60	2,95	0,34	3,57	93	73,42	89,44	80,63	3,42	0,35	4,24
zy-zy/eu-eu	74	85,03	98,62	90,64	2,87	0,33	3,17	93	81,44	100,00	91,47	3,70	0,38	4,05
ft-ft/eu-eu	75	66,45	82,39	75,40	2,80	0,32	3,71	93	65,87	82,24	75,79	2,97	0,31	3,92
ft-ft/zy-zy	74	74,64	90,55	83,36	2,91	0,34	3,49	93	76,16	91,11	82,85	3,30	0,34	3,98
go-go/zy-zy	74	71,33	89,51	79,95	3,68	0,43	4,60	93	71,52	86,23	78,93	3,08	0,32	3,90
n-gn/zy-zy	74	83,66	106,06	93,06	4,31	0,50	4,60	93	82,52	104,32	92,67	4,79	0,50	5,17
al-al/n-sn	75	46,15	75,00	57,59	5,27	0,61	9,15	93	41,79	69,64	56,56	5,45	0,56	9,64
I.chormique	75	50,46	56,40	53,20	1,19	0,14	2,25	93	49,85	55,46	52,95	1,21	0,13	2,28
I.skélique	75	77,31	98,17	88,09	4,25	0,49	4,82	93	80,26	100,62	88,97	4,33	0,45	4,87
I.Roeher	75	1,06	2,16	1,47	0,20	0,02	13,60	93	1,09	1,90	1,41	0,17	0,02	12,06

Tableau 2

Les valeurs moyenne des caractères céphalo-faciaux et corporels chez les femmes de Nāmoloasa et Corod

Caractère	Nāmoloasa							Corod						
	N	min	max	X	σ	eM	CV	N	min	max	X	σ	eM	CV
g-op	72	163	193	178,58	6,10	0,72	3,42	62	165	190	179,32	5,95	0,76	3,32
eu-eu	73	136	159	146,75	4,96	0,58	3,38	62	136	160	147,89	5,24	0,67	3,54
ft-ft	72	103	127	112,76	4,75	0,56	4,21	62	101	126	113,18	4,07	0,52	3,60
t-v	73	113	132	121,52	3,93	0,46	3,23	62	106	128	119,53	4,88	0,62	4,08
zy-zy	73	122	143	130,34	5,01	0,59	3,84	62	123	142	132,42	4,57	0,58	3,45
go-go	73	96	115	103,70	4,75	0,56	4,58	62	95	116	104,32	4,56	0,58	4,37
n-gn	73	106	132	120,04	5,85	0,69	4,87	62	109	135	120,68	4,91	0,62	4,07
n-sn	73	49	68	57,53	4,23	0,49	7,35	62	50	66	55,40	3,59	0,45	6,48
al-al	73	27	38	31,81	2,28	0,27	7,17	62	27	37	31,18	2,09	0,27	6,70
v-sol	73	1441	1710	1553,37	54,83	6,42	3,53	62	1451	1686	1572,66	58,61	7,45	3,73
v-sez	73	759	923	835,03	26,99	3,16	3,23	62	776	918	843,35	35,53	4,51	4,21
L.m.i	73	646	794	718,34	35,68	4,18	4,97	62	652	802	729,52	32,88	4,18	4,51
Poids	73	43	83	60,51	9,40	1,10	15,53	62	42	80	59,21	8,68	1,10	14,66
eu-eu/g-op	72	75,54	90,59	82,22	3,10	0,36	3,77	62	72,34	91,86	82,53	3,46	0,44	4,19
t-v/g-op	72	62,37	76,74	68,12	2,85	0,34	4,18	62	56,38	74,42	66,70	3,03	0,38	4,54
t-v/eu-eu	73	74,84	89,93	82,87	3,16	0,37	3,81	62	75,48	88,28	80,86	2,81	0,36	3,47
zy-zy/eu-eu	73	81,58	97,79	88,86	3,43	0,40	3,86	62	82,35	95,86	89,59	2,85	0,36	3,18
ft-ft/eu-eu	72	70,39	83,69	76,91	3,15	0,37	4,10	62	72,50	82,76	76,57	2,65	0,34	3,46
ft-ft/zy-zy	72	78,42	98,31	86,58	3,14	0,37	3,63	62	80,74	93,60	85,50	2,61	0,33	3,05
go-go/zy-zy	73	68,09	86,26	79,50	3,75	0,44	4,72	62	72,86	89,92	78,81	3,01	0,38	3,82
n-gn/zy-zy	73	78,72	101,63	92,04	5,32	0,62	5,78	62	83,85	104,80	91,20	3,94	0,50	4,32
al-al/n-sn	73	46,88	69,39	55,48	4,57	0,53	8,24	62	46,67	70,59	56,48	4,99	0,63	8,83
I.chormique	73	51,11	56,38	53,77	1,06	0,12	1,97	62	51,42	56,28	53,60	1,12	0,14	2,09
I.skélique	73	77,37	94,10	86,04	3,66	0,43	4,25	62	77,69	94,47	86,59	3,90	0,50	4,50
I.Roeher	73	1,18	2,15	1,62	0,26	0,03	16,05	62	1,13	2,04	1,53	0,21	0,03	13,73

Tableau 4
La répartition des caractères céphalo-faciaux selon les échelles de variation chez les femmes de Nāmoloasa (N) et Corod (C)

<u>g-op</u> (ech Lebzelter-Saller)	N (73)	C (62)	<u>zy-zy/eu-eu</u> (ech Vallois)	N (73)	C (62)	<u>n-gn/zy-zy</u> (ech Martin-Saller)	N (73)	C (62)
t court x - 161	-	-	micropside x - 89,9	64,38	54,84	euryprosopie 77,0-80,9	1,37	-
court 162 - 169	2,78	4,84	mesopside 90,0 - 92,9	24,66	35,48	mesoprosopie 81,0-84,9	6,85	4,84
moyen 170 - 176	30,56	24,19	macropside 93,0 - x	10,96	9,68	leptoprosopie 85,0-89,9	27,40	35,48
long 177 - 184	45,83	46,77	<u>zy-zy</u> (ech Lebzelter-Saller)			hyperlepto 90,0-x	64,38	59,68
t long 185 - x	20,83	24,19	t étroit x - 120	1,37	-	<u>al-al/n-sn</u> (ech Eickstedt)		
<u>eu-eu</u> (ech Lebzelter-Saller)			étroit 121-127	24,66	12,90	t étroit x-54,9	52,05	40,32
t étroit x - 134	-	-	moyen 128 - 135	61,64	61,29	étroit 55-59,9	28,77	33,87
étroit 135 - 141	16,44	11,29	large 136 - 142	10,96	25,81	moyen 60-64,9	17,81	19,35
moyen 142 - 149	57,53	54,84	t large 143 - x	1,37	-	large 65 69,9	1,37	4,84
large 150 - 157	24,66	30,64	<u>go go</u> (ech Weninger mod)			t large 70-x	-	1,61
t large 158 - x	1,37	3,23	t étroit x - 91,9	-	-	<u>V-sol</u> (mm) (ech Martin)		
<u>t-v</u> (ech Routil)			étroit 92-97,9	4,11	4,84	petite 1400-1489	8,22	9,68
t bas x - 103	-	-	moyen 98 - 103,9	38,36	20,97	sous-moyenne 1490-1529	30,13	9,68
bas 104 - 111	-	4,84	large 104 - 109,9	43,83	56,45	moyenne 1530-1559	19,18	24,19
moyen 112 - 119	31,51	45,16	t large 110 - x	13,70	17,74	sur-moyenne 1560-1589	19,18	14,51
haut 120 - 127	63,01	45,16	<u>n-gn</u> (ech Lebzelter-Saller)			grande 1590-1679	20,55	37,10
t haut 128 - x	5,48	4,84	t bas x - 102	-	-	t grande 1680-1879	2,74	4,84
<u>ft-ft</u> (ech Martin-Saller)			bas 103-107	1,37	-	<u>V-sez</u> (mm)(ech Schlaginhaufen)		
t étroit x - 88	-	-	moyen 108 - 113	9,59	4,84	court 700-749	-	-
étroit 89 - 95	-	-	haut 114 - 119	39,73	35,48	sous-moyen 750-799	8,22	12,90
moyen 96 - 102	-	-	t haut 120 - x	49,31	59,68	moyen 800-849	67,12	43,55
large 103 - 109	26,39	19,35	<u>n-sn</u> (ech Eickstedt)			sur-moyen 850-899	21,92	35,48
t large 110 - x	73,61	80,65	t bas x - 45	-	-	haut 900-949	2,74	8,06
<u>eu-eu/g-op</u> (ech Martin-Saller)			bas 46-48	-	-	<u>V-sez/V-sol</u> (ech Vallois)		
dolicho 72,0-76,9	2,78	4,84	moyen 49 51	6,85	14,52	brachycorme 50,0-51,9	2,74	6,45
mesocephale 77,0-81,9	43,06	40,32	haut 52 - 54	19,18	29,03	metriocorme 52,0-53,9	57,53	53,23
brachycephale 82,0-86,4	44,44	40,32	t haut 55 x	73,97	56,45	macrocorme 54,0-55,9	39,73	40,32
hyperbrachy 86,5-91,9	9,72	14,52	<u>al-al</u> (ech Eickstedt)			<u>V-sol - V-sez / V-sez</u>		
ultrabrachy 92,0-x	-	-	t étroit x - 27	4,11	4,84	(ech Manouvrier)		
<u>t-v/g-op</u> (ech Martin-Saller)			étroit 28-30	49,31	58,06	brachyskele 75-79,9	4,11	4,84
chamaecephale x-57,9	-	1,61	moyen 31 - 33	31,51	32,26	subbrachyskele 80-84,9	36,98	37,10
orthocephale 58,0-62,9	1,39	4,84	large 34 - 36	13,70	4,84	mesatiskele 85-89,9	43,83	37,10
hypsiceph modere 63,0-67,9	51,39	64,52	t large 37 - x	1,37	-	submacrosele 90-94,9	13,70	20,96
hypsiceph moyen 68,0-72,9	40,28	25,81	<u>ft-ft/zy-zy</u> (Lundborg-Linders-Saller)			macrosele 95-99,9	1,37	-
hypsiceph accentue 73,0-x	6,94	3,22	t étroit x-71,9	-	-	<u>G/I</u> (I Rohrer) (ech Saller)		
<u>t-v/eu-eu</u> (ech Martin-Saller)			étroit 72,0-76,9	-	-	hypotrophique x-1,19	-	1,61
tapeinocephale x-78,9	9,59	27,42	moyen 77,0-81,9	4,17	8,06	subeutrophique 1,20-1,34	16,44	14,52
metriocephale 79,0-84,9	58,90	62,90	large 82,0-86,9	56,94	62,90	eutrophique 1,35-1,54	26,03	41,94
acrocephale 85,0-x	31,51	9,68	t large 87,0-x	38,89	29,03	sureutrophique 1,55-1,69	20,55	22,58
<u>ft-ft/eu-eu</u> (ech Martin-Saller)			<u>go-go/zy-zy</u> (Lundborg-Linders-Saller)			hypertrophique 1,70-x	36,98	19,35
metriometope 66,0-68,9	-	-	t étroit x-67,9	-	-			
eurymetope 69,0-74,9	27,78	35,48	étroit 68,0-72,9	4,11	3,22			
hypereury 75,0-x	72,22	64,52	moyen 73,0-77,9	32,88	38,71			
			large 78,0-82,9	45,20	53,23			
			t large 83,0-x	17,81	4,84			

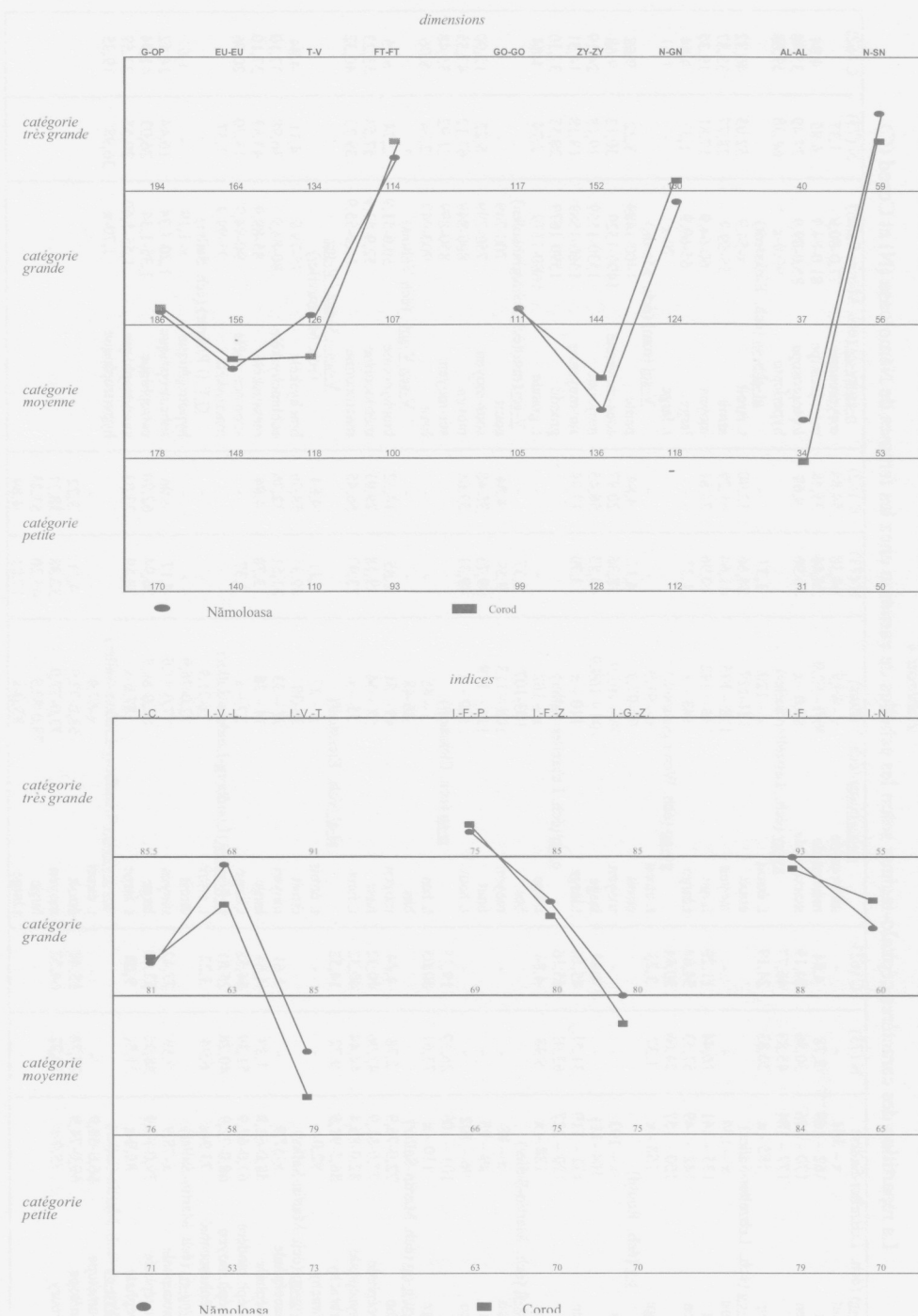


Fig. 1 – Morphogramme taxonomique – hommes.

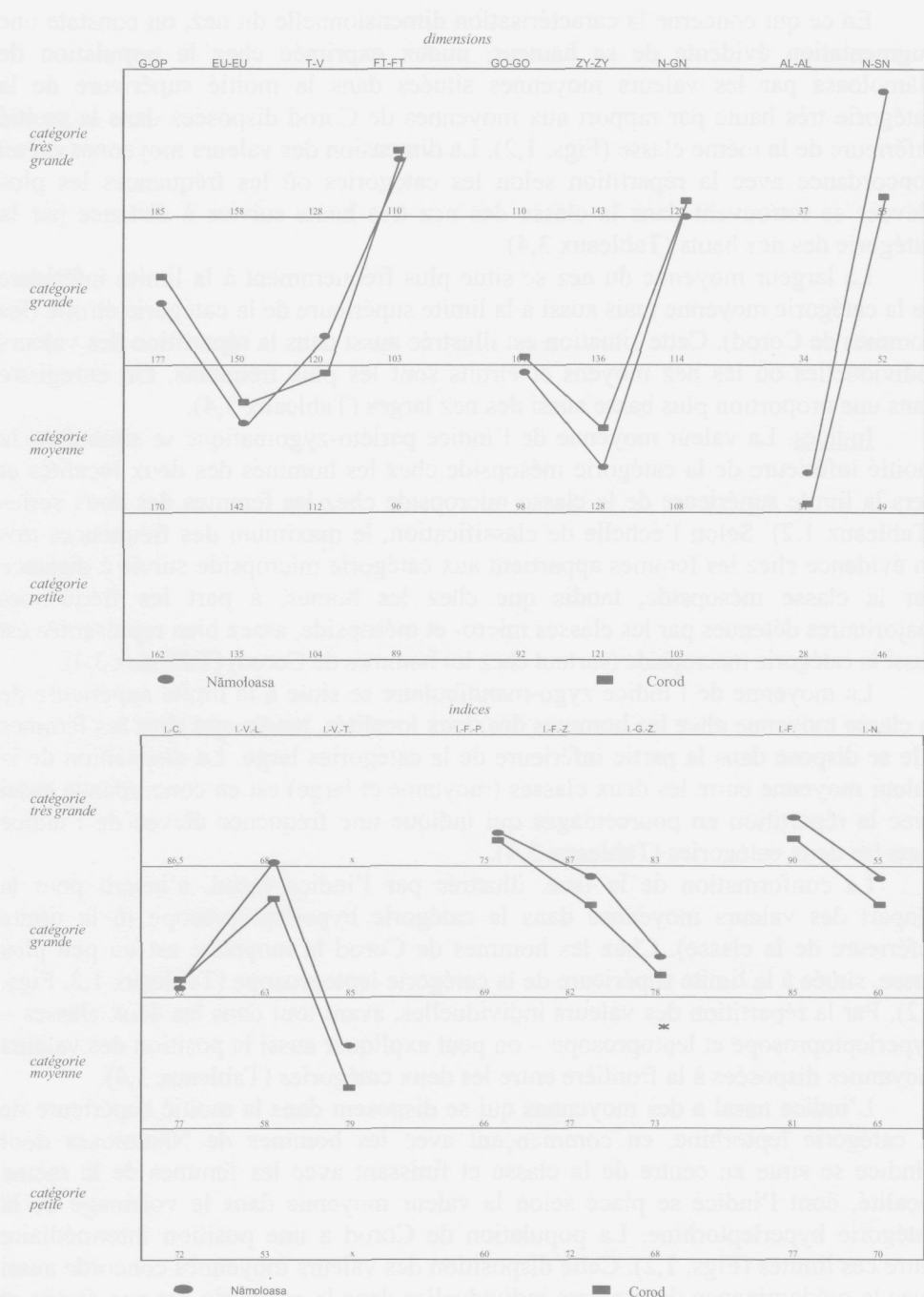


Fig. 2 – Morphogramme taxonomique – femmes.

En ce qui concerne la caractérisation dimensionnelle du nez, on constate une augmentation évidente de sa hauteur, mieux exprimée chez la population de Nămolosa par les valeurs moyennes situées dans la moitié supérieure de la catégorie très haute par rapport aux moyennes de Corod disposées dans la moitié inférieure de la même classe (Figs. 1,2). La dimension des valeurs moyennes est en concordance avec la répartition selon les catégories où les fréquences les plus élevées se retrouvent dans la classe des nez très hauts suivies à distance par la catégorie des nez hauts (Tableaux 3,4).

La largeur moyenne du nez se situe plus fréquemment à la limite inférieure de la catégorie moyenne mais aussi à la limite supérieure de la catégorie étroite (les hommes de Corod). Cette situation est illustrée aussi dans la répartition des valeurs individuelles où les nez moyens et étroits sont les plus fréquents. On enregistre dans une proportion plus basse aussi des nez larges (Tableaux 3,4).

Indices. La valeur moyenne de l'indice pariéto-zygomatique se situe dans la moitié inférieure de la catégorie mésopside chez les hommes des deux localités et vers la limite supérieure de la classe micropside chez les femmes des deux séries (Tableaux 1,2). Selon l'échelle de classification, le maximum des fréquences mis en évidence chez les femmes appartient aux catégories micropside suivie à distance par la classe mésopside, tandis que chez les hommes, à part les fréquences majoritaires détenues par les classes micro- et mésopside, assez bien représentée est aussi la catégorie macropside (surtout chez les hommes de Corod) (Tableaux 3,4).

La moyenne de l'indice zygo-mandibulaire se situe à la limite supérieure de la classe moyenne chez les hommes des deux localités, tandis que chez les femmes elle se dispose dans la partie inférieure de la catégorie large. La disposition de la valeur moyenne entre les deux classes (moyenne et large) est en concordance aussi avec la répartition en pourcentages qui indique une fréquence élevée de l'indice dans les deux catégories (Tableaux 3,4).

La conformation de la face, illustrée par l'indice facial, s'inscrit pour la plupart des valeurs moyennes dans la catégorie hyperleptoprosope (à la limite inférieure de la classe). Chez les hommes de Corod la moyenne est un peu plus basse, située à la limite supérieure de la catégorie leptoprosope (Tableaux 1,2, Figs. 1,2). Par la répartition des valeurs individuelles, avant tout dans les deux classes – hyperleptoprosope et leptoprosope – on peut expliquer aussi la position des valeurs moyennes disposées à la frontière entre les deux catégories (Tableaux 3,4).

L'indice nasal a des moyennes qui se disposent dans la moitié supérieure de la catégorie leptorhine, en commençant avec les hommes de Nămolosa dont l'indice se situe au centre de la classe et finissant avec les femmes de la même localité, dont l'indice se place selon la valeur moyenne dans le voisinage de la catégorie hyperleptorhine. La population de Corod a une position intermédiaire entre ces limites (Figs. 1,2). Cette disposition des valeurs moyennes concorde aussi avec la prédominance des valeurs individuelles dans la catégorie des nez étroits et très étroits, mais en même temps tempérée aussi par un nombre appréciable de nez moyennement larges (Tableaux 3,4).

LA PIGMENTATION DE L'IRIS ET DES CHEVEUX

La pigmentation foncée de l'iris est plus fréquemment trouvée chez les séries féminines spécialement chez les femmes de Corod (75%) tandis que la couleur claire des yeux, moins fréquente, indique des fréquences plus élevées chez les hommes par rapport aux femmes. La proportion de la pigmentation intermédiaire est presque égale à celle de l'iris foncé tant chez les hommes que chez les femmes de Nāmoloasa, tandis que à Corod les deux séries (femmes et hommes) enregistrent des fréquences plus diminuées d'iris intermédiaire et des proportions évidemment élevées des yeux foncés (Tableau 5).

En ce qui concerne la pigmentation des cheveux, la couleur intermédiaire est prédominante pour toutes les séries, spécialement pour les celles féminines. Une proportion suffisamment bien représentée a aussi la couleur foncée des cheveux, mais cette fois avec une fréquence visiblement plus élevée chez les séries masculines par rapport aux séries féminines (Tableau, planches I-IV).

Tableau 5

La pigmentation de l'iris

Localité	Sexe	N	Claire		Intermédiaire		Foncée	
			n	%	n	%	n	%
Nāmoloasa	♂	75	13	17,33	33	44,0	29	38,67
	♀	73	7	9,59	32	43,83	34	46,58
Corod	♂	93	16	17,20	23	24,73	54	58,06
	♀	62	9	14,52	6	9,68	47	75,80

Tableau 6

La pigmentation des cheveux

Localité	Sexe	N	Claire		Intermédiaire		Foncée	
			n	%	n	%	n	%
Nāmoloasa	♂	75	1	1,33	44	58,67	30	40,00
	♀	73	2	2,74	58	79,45	13	17,81
Corod	♂	92	4	4,35	54	58,69	34	36,96
	♀	62	4	6,45	47	75,81	11	17,74

CARACTÈRES CORPORELS

En analysant les valeurs moyennes de la stature, on peut observer que la population de Corod est plus haute de 1,5-2 cm que celle de Nāmoloasa. Ainsi, les valeurs moyennes de la stature masculine s'inscrivent dans la catégorie sur-moyenne, mais à Nāmoloasa elles se placent dans la partie inférieure de la classe et à Corod dans sa partie supérieure. La tendance d'augmentation de la stature à Corod est mise en évidence aussi chez les femmes par une moyenne de catégorie sur-moyenne par rapport aux femmes de Nāmoloasa lesquelles s'inscrivent dans la

catégorie moyenne (Tableaux 1,2). La répartition des valeurs individuelles présente généralement les plus élevées fréquences dans la catégorie des tailles hautes, mais les catégories sur-moyenne, moyenne et sous-moyenne sont aussi assez bien représentées et approximativement équilibrées chez toutes les séries (Tableaux 3,4).

La tendance d'augmentation de la stature chez la population de Corod est concordante aussi avec l'élévation du buste chez ces habitants, la taille-assise étant d'approximativement 3 cm plus haute chez les hommes et de 8 cm plus haute chez les femmes par rapport à la série de Nămolosa. Les valeurs moyennes de la taille-assise s'inscrivent généralement à la limite supérieure de la catégorie moyenne, situation reflétée aussi dans la répartition en pourcentages des sujets par la disposition des fréquences les plus élevées dans les catégories des bustes moyens et sur-moyens (Tableaux 3,4).

Le poids moyen de la population masculine est de 69,39 kg (Nămolosa) et 68,63 kg (Corod), tandis que pour la population féminine il est de 60,51 kg (Nămolosa) et 59,21 kg (Corod). On observe ici une tendance d'augmentation pondérale de la population de Nămolosa dans une proportion de 0,7-1,3 kg par rapport aux habitants de Corod (Tableaux 1,2).

En rapportant le poids à la stature on obtient les proportions suivantes:

	<u>Nămolosa</u>	<u>Corod</u>
Hommes:	69,39 kg/167,8 cm ($\approx + 2$ kg)	68,63 kg/169,2 cm ($\approx - 1$ kg)
Femmes:	60,51 kg/155,3 cm ($\approx + 5$ kg)	59,21 kg/157,2 cm ($\approx + 2$ kg)

Excepté la tendance d'augmentation du poids chez les femmes de Nămolosa, on peut admettre selon l'échelle de Broca que ces déviations de ± 2 kg trouvées chez les populations des deux localités s'inscrivent entre les limites des paramètres de la normalité pondérale. La même conclusion résulte en ce qui concerne la valeur moyenne de l'indice Roehrer, laquelle s'inscrit dans la catégorie eutrophique, excepté la moyenne de la série féminine de Nămolosa (sureutrophique) (Tableaux 1,2). Sur l'échelle unique de classification Martin-Saller de l'indice Roehrer, les fréquences les plus élevées s'inscrivent souvent dans la classe eutrophique, suivie, plus ou moins à la distance, par les proportions des classes subeutrophique et sureutrophique. Les femmes de Nămolosa font exception par la fréquence prédominante de la classe hypertrophique suivie à peu de distance par les classes eutrophique, sureutrophique et subeutrophique en proportions presque égales (Tableaux 3,4).

L'indice cormique s'inscrit par les valeurs moyennes dans la moitié supérieure de la classe macrocorme, situation qui concorde aussi avec la répartition prépondérante des sujets tant dans cette catégorie que dans la catégorie métriocorme (Tableaux 3,4).

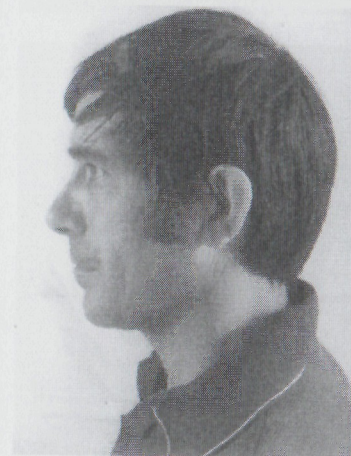
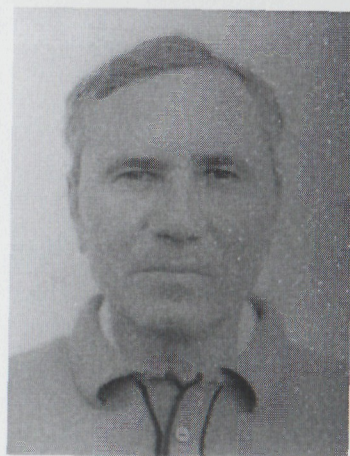


Planche I – Types anthropologiques de Nămolosa

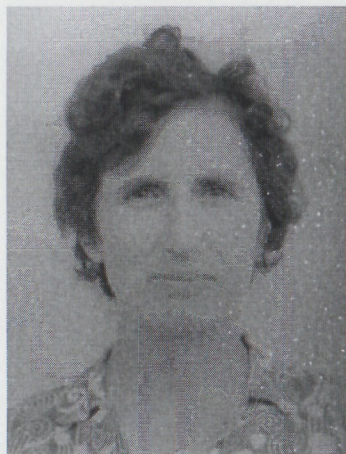


Planche II – Types anthropologiques de Nămolosa

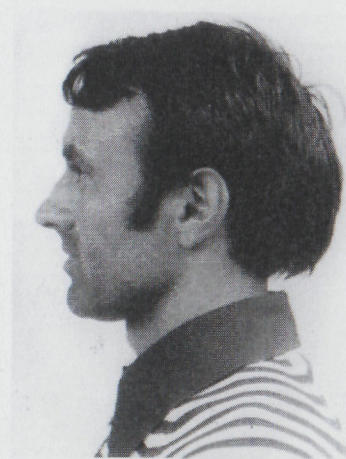
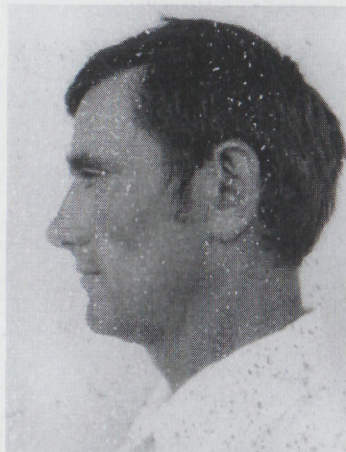
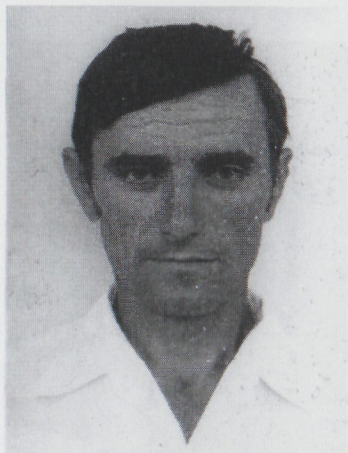


Planche III- Types anthropologiques de Corod



Planche IV– Types anthropologiques de Corod

L'indice skélique, exprimé par le rapport entre la longueur du membre inférieur et la taille-assise, indique des moyennes de catégorie mésatiskèle, avec des valeurs un peu plus élevées chez les hommes par rapport aux femmes. Cette position des moyennes est reflétée aussi dans la répartition des valeurs individuelles, lesquelles tendent à se cantonner spécialement dans la catégorie mésatiskèle presque pour toutes les séries, mais avec une tendance vers la sub-macroskélie chez les hommes et subbrachyskélie chez les femmes (Tableaux 3,4).

CONCLUSIONS

Les populations de ces deux localités se caractérisent en ce qui concerne les dimensions par une calotte céphalique de catégorie initialement longue, moyennement large et avec un front très large. Le diamètre vertical est initialement haut à Nămolosa et moyen à Corod. Le complexe associatif de ces quatre dimensions, tel qu'il apparaît sur le morphogramme, a approximativement la forme de la lettre «U», aspect trouvé plus fréquemment chez les populations de la Plaine Roumaine, où le diamètre transversal et celui vertical sont généralement dominés par la valeur des autres dimensions (le diamètre longitudinal et le diamètre minimal frontal). En ce qui concerne la conformation, la calotte est initialement brachycéphale, modérément vers moyennement hypsicéphale, métriocéphale et hypermétépe à la limite inférieure de la classe.

Les dimensions faciales indiquent des faces hautes à Nămolosa et initialement très hautes à Corod mais moyennement larges chez les deux populations. L'indice facial exprime chez la plupart des séries une conformation de catégorie initialement hyperleptoprosope, excepté les hommes de Nămolosa qui ont un indice haut leptoprosope.

Les nez sont très hauts mais moyennement larges dans les deux localités, situation reflétée, en ce qui concerne la conformation, par des indices nasaux généralement de catégorie leptorhine mais aussi hyperleptorhine (chez les femmes de Nămolosa).

La pigmentation des yeux est avec prédominance foncée et celle des cheveux avec prédominance intermédiaire chez toutes les séries.

La stature des hommes est de catégorie surmoyenne dans les deux localités mais avec une valeur un peu plus élevée à Corod. Les femmes de Nămolosa, ayant une taille de catégorie moyenne, sont plus petites que celles de Corod, chez les quelles la stature est de catégorie surmoyenne.

Sous l'aspect pondéral, la plupart des séries s'inscrit entre les limites de la normalité, l'indice Rohrer étant situé le plus souvent dans la catégorie eutrophique, excepté les femmes de Nămolosa, dont l'indice moyen est de catégorie sureutrophique.

Finalement, il ressort que par les valeurs des dimensions, de conformation et de pigmentation les habitants des deux localités ressemblent, en bonne partie, aux populations de la plaine du nord-est de la Munténie étudiées et présentées par nous dans divers travaux antérieurs.

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THE APPLICATION OF THE BOOTSTRAP METHOD IN ANTHROPOLOGY

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We proposed to accomplish an introduction, theoretically moderate, and as much as possible more practical, to the bootstrap resampling method. We tried to limit our theoretical argumentation, the main idea being that by means of a practical example we would clarify the concept. The method was applied to evidence sexual dimorphism on a sample of 305 adolescents, 17 years old boys and girls, from the “Matei Basarab” College in Bucharest. The bootstrap may be a useful tool for anthropological research when facing problems relating the size of the sample, the research method assumptions or representativity of the selected sample. The paper addresses mainly to the researchers in anthropology familiar with the statistical methods currently used.

1. INTRODUCTION

Anthropological research is to a large extent based upon the accuracy of the statistical analysis results of the data collected from a basic sample, randomly drawn from a “target” population. Traditional, classical tests, frequently used in anthropological research such as t-Student, correlations, linear regression, may reveal significant differences between the investigated groups, identify links, factors or effects. They provide **power** and accuracy to the research when the researcher has the **chance** to discover a significance level lower than 0.05. Such a result gives us a first order accuracy and makes the research legitimate the extent of the result over the entire target population. Practically, the confidence interval may indicate an effect if the analyzed statistical parameter measures the differences between groups, situations, etc. From this point of view in statistics a confidence interval containing the “0” value makes the analyzed parameter statistically insignificant, because this may mean anything (the parameter is positive, is negative or is even 0). In this circumstance, the respective parameter cannot be extrapolated to the entire population.

There are very few researchers interested in the result obtained from a sample, if the conclusions of this result cannot be extended to the entire population

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where the analyzed sample was extracted from. Practically, if it was not obtained a $p \leq 0.05$ the results are not statistically significant, this reflecting only the tendency of the respective phenomenon within the researched sample. The bootstrap method may help us to solve such a sensitive problem. This is a special valuable research tool when the studied sample does not accurately comply with the requirements of a valid analysis using classical methods:

- selection is not accurately random;
- the distribution of the sample does not follow a certain assumption (normality);
- the size of the sample is too small and the tests have a small power;
- the size of the sample is exaggeratedly big and the tests have too much power (can be demonstrated that any correlation is significant) and the readjustment of the sample is not an option.

2. THE BOOTSTRAP METHOD IN BRIEF PRESENTATION

The bootstrap method is one of the resampling methods which allow us to obtain as much as close representativity of the studied sample. It is originated by the research of two statisticians, Efron and Tibshirani, who successfully completed in 1993 the three other important resampling methods:

- Permutation test (R. A. Fisher, the founder of the statistical test with the same name)
- Cross-Validation (Seymour Geisser, Mervin Stone and Grace G. Wahba)
- Jackknife (Quenouille-Tukey)

All these mentioned methods had their own history, being equally appreciated and criticized. The bootstrap method had shadowed the other ones and is included in the syllabi of the USA, Australia, New Zealand universities, due to more reliable results which can be obtained with it.

Anthropologists must profit from what statisticians discovered. Special literature, published articles of statistics, provides more details on the theoretical basis of the method. The method may be explained simply, without theorems, lemmas, postulates, etc.

Let us suppose we have an original sample of size n , randomly drawn: $y_1, y_2, y_3, \dots, y_n$, obtained from a target population with unknown distribution. Based on these data we can compute a statistical estimation of an interest parameter (mean, variance, Chi-square, etc.):

$$S_0 = t(y_1, y_2, y_3, \dots, y_n)$$

where $t(y_1, y_2, y_3, \dots, y_n)$ represents a function, a computation formula by which the estimation of interest parameter is determined. As an example:

$$t(y_1, y_2, y_3, \dots, y_n) = (y_1 + y_2 + y_3 + \dots + y_n) / n$$

for estimation of population mean.

We now extract with *replacement*, this is the particularity of the bootstrap method, from original sample R “bootstrap” samples of the same size n . Every time we draw a case y_k from original sample, this returned into the “hat”. It is possible to extract the same case several times. In this way, we obtain every time a new sample:

$$(Y_1, Y_2, Y_3, \dots, Y_n)$$

based upon which we compute a new statistical estimation:

$$S_i = t(Y_1, Y_2, Y_3, \dots, Y_n) \text{ where } i=1, 2, \dots, R$$

We obtain in this way R estimations $S_1, S_2, S_3, \dots, S_R$ which may be used to calibrate the estimation obtained from the original data $S_0 = t(y_1, y_2, y_3, \dots, y_n)$.

For example, the difference between the mean of estimations and the original estimation provides information about a systematic distortion of the original estimation (bias). The histogram of the $S_1, S_2, S_3, \dots, S_R$ values provides information about the sample distribution of the estimate. When n and R values are large enough the information that is obtained is more correct. Frequently a value of $R=1000$ is used. According to some publications, the size of the original sample “ n ” should not be less than 20 units.

3. VALUES OF THE BOOTSTRAP METHOD – A PRACTICAL EXAMPLE

To emphasize the help that the resampling bootstrap method may bring to the researcher we will sustain the positive values of this by a practical example using a computerized database from the Center for Anthropological Researches.

In period of 1988–1992, the group composed by Nadejda Stahovski, Gabriel Călin and Fulga Ioana, from the Anthropology Laboratory – “Victor Babeș” Institute, conducted by Cristina Glavce performed a series of anthropological measurements at the “Matei Basarab” college and the General School beside this in Bucharest. The sample formed of boys and girls contained a number of 1135 subjects with the age between 13 and 17 years old. The research focused on collection of somatometric data for determination of dimensional and conformation growing norms as a function of chronological age and gender. The data have been valorized into planned themes of the institute and agreements such as:

- “The growth and the development of the child and the adolescent between the 13-17 years depending on differentiate environmental condition”.

- The agreement “The impact of environmental factors in prepubertal period” (1990–1993).

- “Anthropological aspects regarding the relation between biological and chronological age at children and adolescents” (1994–1998).
- “Complex anthropological studies regarding ontogenetic periods from new born child to adolescent” (1996–1998).

The practical exemplification refers to a sample of 308 adolescents from the college “Matei Basarab” of 17 year old age, boys and girls from the above mentioned database. The measurements used in our application included the weight and the height of the subjects, based upon which we determined the body mass index BMI, computed using the Quételet formula. Following the data validation we excluded cases where complete information was missing and obtained a sample of 306 adolescents, 124 of masculine gender and 182 of feminine gender. The aim of the research was to determine the sexual differentiation by the three interest variables weight, height and BMI, comparing the sample means.

One first statistical analysis of the groups, differentiated by gender, indicates that in the studied sample, the means of weight and height of masculine gender teenagers are higher than the corresponding means of the feminine gender teenagers. The variability of weight and height, indicated by the standard deviation is higher for 17-year-old boys in comparison with the girls of the same age. However, according to the classical methods, as we can observe in Table 1, the variability of BMI is the same for boys and girls.

Table 1

Variability of height, weight and body mass index

Variables	Gender	N	Minimum	Maximum	Mean	St Deviation	St Error Mean
Weight	Masculine	124	420 0	900.0	620.08	100 76	9.04
	Feminine	182	350.0	840.0	547.14	72.38	5 36
Height	Masculine	124	1565.0	1892 0	1732 41	72.64	6 52
	Feminine	182	1433.0	1744.0	1618.99	58.74	4.35
Body mass index	Masculine	124	15 78	28.93	20 60	2.75	0 24
	Feminine	182	16 04	30.23	20 85	2 37	0 17

The more detailed descriptive analysis from Table 1 indicates the variability range of the three measurements by gender between minimum and maximum.

The weight for boys and girls varies from single to twice, from 42 kilograms to 90 kilograms for masculine and respectively from 35 to 84 kilograms for feminine. This variability is directly reflected in the body mass index. Initially we considered that there are sufficient statistical arguments to use a “t” test for means comparison by gender of the three variables. The test results are presented in Table 2 in the standard manner of SPSS software package.

Table 2

The results of the “t” regarding sexual dimorphism by weight, height, and body mass index parameters

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tai-led)	Mean Difference	Std.Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Weight	Equal variances assumed	17.417	.000	7.368	304	.000	72.93779	9.89951	53.45756	92.41802
	Equal variances not assumed			6.933	207.291	.000	72.93779	10.51989	52.19809	93.67749
Height	Equal variances assumed	10.958	.001	15.048	304	.000	113.42228	7.53750	98.59000	128.25456
	Equal variances not assumed			14.461	226.481	.000	113.42228	7.84357	97.96657	128.87798
Body mass index	Equal variances assumed	3.358	.068	-.853	304	.394	-.25143	.29480	-.83154	.32868
	Equal variances not assumed			-.829	237.544	.408	-.25143	.30323	-.84878	.34593

As we can see from Table 2 the statistical analysis indicates that two out of three analyzed variables make a significant difference between genders. The “Sig (2-tailed)”, that is the significance level p , is $0.000 < 0.05$. The boys of 17 years of age have in average the weight with 7.29 kilograms more and the height with 11.34 centimeters more in comparison with the girls of the same age. The extension of this conclusion over the entire population of 17 years of age has a very strong validity.

With the third variable, BMI, we have a problem. The observed mean difference of 0.25143 between boys and girls *is not significant* from two classical analysis points of view, previously explained:

- $p = 0.394$ (“Sig. 2-tailed” in Table 2 *is more than 0.05*);
- the 95% confidence interval is between -0.83154 and 0.32868, which is an interval containing the “0”;

We will continue the BMI analysis more thoroughly. Mirror graphical representation of the observed BMI values, with normal curve reference set over, is presented in Fig. 1. It can be noticed even graphically that the boys have on average a BMI slightly lower than the observed BMI of the girls.

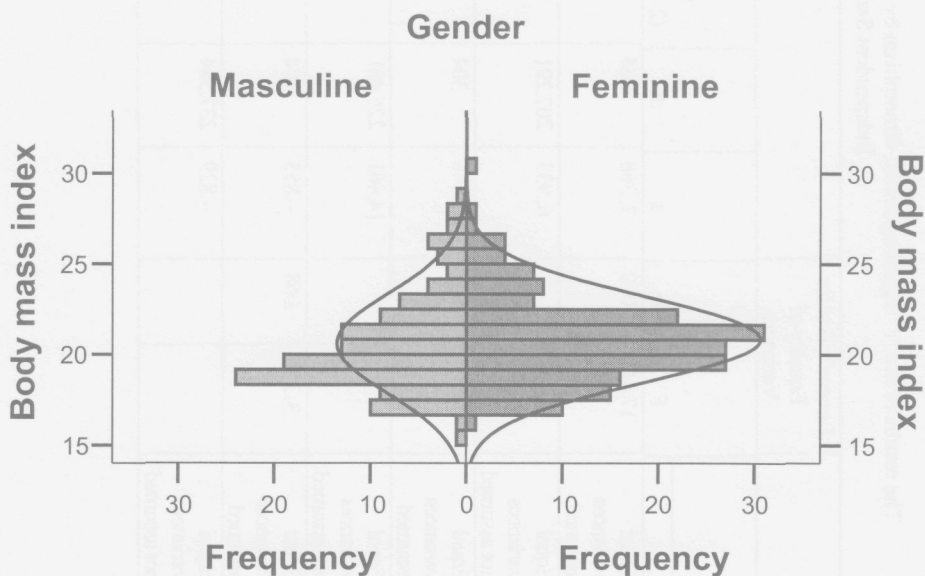


Fig. 1. – Observed BMI values by gender.

In such a situation, when classical analysis fails to indicate a significant difference, the bootstrap method may help a lot. We applied the bootstrap method using a special syntax program, recommend by SPSS package supplier. Technically, in the spirit of the method, we simulated 10,000 samples similar to the studied sample. For each simulated sample, we computed the value of the mean difference between the observed BMI of the boys and girls. The graphical analysis of the bootstrap mean differences frequencies indicates a normal distribution (Fig. 2).

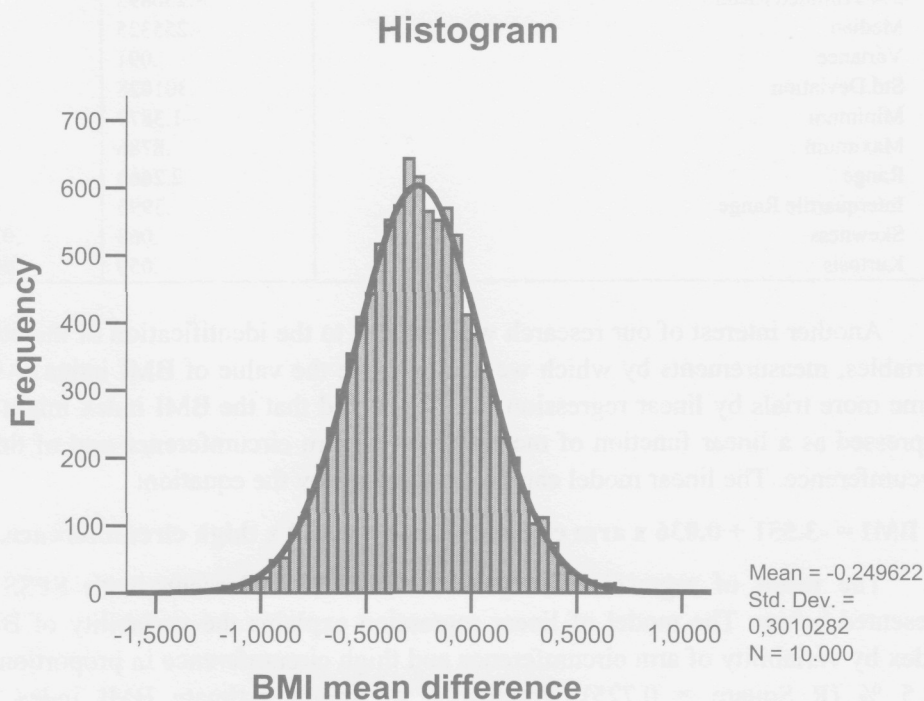


Fig. 2. – BMI mean differences by the bootstrap method.

The normality of the distribution was confirmed by Kolmogorov-Smirnov normality test as can be noticed from Table 3. The mean of BMI mean differences and the confidence interval of the mean were computed.

In these circumstances the BMI mean differences have a mean value of -0.249622 with a 95 % confidence interval of $(-0.255523 - 0.243722)$ which does not include the “0” value. **At this moment, we can affirm with a 95% probability, that the difference by gender between BMI indexes of 17 years old teenagers is certain. The girls have a slightly bigger body mass index (BMI) than the boys.**

The difference initially obtained from the basic sample of -0.25143 is very close to the mean obtained with the bootstrap method (Table 3).

Table 3

BMI mean differences and the confidence interval Kolmogorov-Smirnov test

BMI mean differences		Statistics	Std.Error
Mean		-.249622	.003010
95% Confidence Interval for Mean	Lower bound	-.255523	
	Upper bound	-.243722	
5% Trimmed Mean		-.250893	
Median		-.255325	
Variance		.091	
Std.Deviation		.301028	
Minimum		-1.3877	
Maximum		.8786	
Range		2.2663	
Interquartile Range		.3995	
Skewness		.068	.024
Kurtosis		.059	.049

Another interest of our research was focused to the identification of the other variables, measurements by which we can evaluate the value of BMI index. After some more trials by linear regression, we discovered that the BMI index might be expressed as a linear function of measurement of arm circumference and of thigh circumference. The linear model can be summarized by the equation:

$$\text{BMI} = -3.551 + 0.036 \times \text{arm circumference} + 0.029 \times \text{thigh circumference}.$$

The result of regression analysis of the 306 adolescents with SPSS is presented below. The model of linear regression explains the variability of BMI index by variability of arm circumference and thigh circumference in proportion of 72.5 % (R Square = 0.725). Practically we might estimate BMI index by measurement of arm circumference and thigh circumference (Table 4).

Table 4

Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.851 ^a	.725	.723	1.33168

Unstandardized coefficients (B) of linear equation (-3.551; 0.036; 0.029) are all of them significantly different from "0". The beta coefficients indicate that thigh circumference has the biggest contribution to BMI estimation (0.536) – Table 5.

Table 5

Significance of the unstandardized coefficients of BMI linear equation coefficients^a

Parameters	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-3.551	.871		-4.076	0.000
Arm circumference	.036	.004	.383	9.010	0.000
Thigh circumference	.029	.002	.536	12.603	0.000

In this case, the bootstrap could bring more accuracy in making evidence of the sexual dimorphism expressed by BMI of the two groups, which is not noticeable, by classical analysis that is a second order accuracy.

4. PRO AND AGAINST COMMENTS REGARDING RESAMPLING METHODS

As was expected, the resampling methods, irrespective of how they are named: Bootstrap, Jackknife, Monte Carlo, etc. have to the same extent fans and critics. The main “pro” arguments would be that these methods are not connected with the classical assumptions of statistical tests: random selection, normal distribution, representativity, etc. Such methods address samples of too small or too big size, which have been drawn randomly or not, or we have not information regarding original population distribution. The loyal admirers of resampling methods call resampling “the method”, the suspicious ones call it “an alternate method”, the hard contesters say about resampling that it is only a “brutal use of the computer”.

The “pro” and “against” discussions regarding resampling methods created a special literature in the world of statistical research. Now the bootstrap method is fully integrated into the research of all the fields, where the simulation may help the understanding and the explanation of some phenomena. This requires a performant computing technique. In the BMI analysis previously presented over three millions (306 x 10,000) simulated cases have been processed. The bootstrap method, which frequently may be accompanied by other resampling tests like permutation test, notwithstanding its large applicability, is not a routine one, in the sense that every analysis must be conducted and adapted in a particular way to the aim and to the assumptions of the research.

In conclusion, we appreciate the utility of the method for at least two reasons:

- reduces the allocated time, financial costs necessary with personnel involved into the field research, due to the fact that allows investigation of a small sample size from population;
- evidences differences, which cannot be noticed, by classical methods and provides a more accurate estimation of the statistical parameters.

^a Dependent Variable: BMI

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BODY MASS VARIABILITY IN CHILDREN AGED 11–18

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The main target of our survey is to create an anthropological database regarding body mass in children aged 11–18, which will serve as national population control, a reference point for establishing normality as concerns children and teenagers' processes of growth and development, and pathological potential tendencies situated at the two ends of the somatic anthropological variability range. In order to prevent nutrition generated diseases, our research tries to determine the age when the first signs of gliding on a pathological slide from the somatic growth and development point of view appear. In this context, medical anthropology can contribute to prevention of skids in the youth's process of growth and development through an anthropological monitoring action, additional to their medical monitoring. WHO recommended the use of anthropometrics in national and local monitoring systems concerning nutritional health, in order to provide information applicable to national health politics and programmes and in the interventions of prevention services.

MATERIAL AND METHOD

Our study makes reference exclusively to children and teenagers aged 11–18 from Bucharest city, in the period 2004–2006. The subjects were pupils from secondary schools, high schools with theoretic profile and high schools with practical profile (almost 1,378 boys and 1,860 girls).

This fundamental research aims to be a contribution to WHO's efforts to assemble an international reference population, a reference point for assessing the harmonious growth and development of children across countries from all over the world.

Simultaneously with collecting the anthropometrical data a questionnaire regarding the nutritional behavior was applied, meant to correlate in a further study the somatic typology with food habits.

DISCUSSIONS

We must state from the very beginning that we have in front of us a transversal anthropological correlation, which by its nature offers information upon

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a state of fact, at a certain moment of the autogenetic evolution of a generation of children and teenagers.

We performed somatic measurements regarding the height, sitting height, length of inferior limb, thorax circumference, waist perimeter and weight.

1. Anthropometrical body mass dimensions

The process of growth and development of these children and teenagers is characterized by very significant sexual dimorphism, represented by a macrosomatisation of boys in comparison with girls.

However, it is worth mentioning that for the younger ages, especially for the age of 11, the average values of some body dimensions are extremely similar, almost equal, for boys and girls. Here the length of the inferior limb with a mean value of 709.18 mm in boys and 704.99 mm in girls could be nominated; and also the weight, with mean values of 41.46 kg in boys and 41.03 kg in girls; thorax circumference, with an average value of 741.92 mm in boys and 747.77 in girls. At the same time, stature and sitting height are higher in girls as compared with boys and the waist perimeter is significantly higher in boys.

Between the ages of 11 and 18, the body dimensions increase, being as average values, significantly higher in boys than in girls; as regards height, we recorded an increase of 281.37 mm in the male series and of 144.22 mm in the female series, the difference between them (137.15 mm) being highly significant; as concerns the sitting height, we recorded an increase of 169.82 mm in boys as compared with 100.82 mm in girls, the difference between them (68.86 mm) being significant; as for the length of the inferior limb, we recorded an increase of 111.65 mm in boys and 43.40 in girls.

The weight displays a difference of 25.81 kg in boys and only 14.19 kg in girls (a spectacular significant difference alongside the inferior one noted in the case of height).

Between the ages of 11 and 18, the thorax circumference presents a difference of 174.27 mm in the boys' series and of 96.35 mm in the girls' series; the waist perimeter shows a difference of 87.77 mm in the boys' series and of 41.00 mm in the girls' series.

The body dimensions showing a strong increase in boys as compared with girls are stature (+137.15 mm), weight (+11.62 kg), waist perimeter (+46.77 mm), which are constitutive of some somatic body mass indicators (to mention only BMI), relevant for the nutritional health status in a given population.

The variability range of these body dimensions in 11–18 years old children and teenagers proves that, in the same chronological interlude, the boys succeed in overreaching the girls although starting from similar initial average values.

The analysis of the stature variability by age highlights the following aspects: the increase rate of height in boys is placed around the ages of 11–15 (between 11–12

years of age it reaches 67.48 mm; between 12–13 years of age it reaches 64.06 mm; between 13–14 years of age it reaches 56.32 mm; between 14–15 years of age it reaches 55.90 mm) and it arrives at 243.76 mm, representing 86.63% of the stature global increase; for the same age interval, the increase rate of height in girls attains 132.86 mm, representing 86.63% of stature' global increase (between 11–12 years of age it reaches 59.27 mm; between 12–13 years of age it reaches 35.83 mm; between 13–14 years of age it reaches 21.13 mm; between 14–15 years of age it reaches 16.63 mm).

The analysis of the weight variability by age presents quite a parallelism with the evolution of stature as regards sexual dimorphism, the increase rate in boys aged 11–15 being 18.91 kg, representing 73.26% of the weight global increase, while for the same age period the increase rate in the girls is 13.39 kg, representing 94.36% of the global increase.

Concerning the variability of sitting height and length of the inferior limb, both dimensions arising from stature, for the 11–15 years of age interval, we recorded the following data: in the boys series, the increase rate is 138.96 mm, representing 81.82% of the global increase, while in the girls series this rate attains 89.95 mm, representing 89.09% of the global increase. The length of the inferior limb increases in the boys' series up to 104.90 mm, representing 93.95% of the global increase, as against 43.04 mm in the girls' series, representing 99.17% of the global increase.

Concerning the thorax circumference, we noticed in the same age interval an increase rate in boys of 111.28 mm, representing 63.85% of the global increase of this dimension, while the increase rate in girls is 90.17 mm, representing 93.58% of the global increase.

The waist perimeter registers an increase rate of 48.51 mm in the boys aged 11–15, a value that represents 55.26% of the global increase, while in girls it registers 36.28 mm, representing 88.48% of the global increase.

While keeping in mind the transversal character of our research, we cannot overlook the fact that the degree dimensional achievement in relation with the age of 18 is higher in girls, being over 88% for all the body dimensions at the age of 15.

On the other hand, as a general finding both for boys and girls, the dimensional increase, the accumulation of centimeters and kilograms, takes place up to 15 years of age, inclusively (fast growth), a slow increase following afterwards.

Sexual dimorphism is also present in the increase rate: thus, between 11–18, the height increases by 281.37 mm in boys and 144.22 mm in girls; the sitting height increases by 169.82 mm in boys and 100.96 mm in girls; the length of the inferior limb raises by 111.65 mm in boys and 43.40 mm in girls; the weight increases by 25.81 kg in boys and 14.19 kg in girls; the thorax circumference increases by 174.27 mm in boys and 96.35 mm in girls; the waist perimeter increases by 87.77 mm in boys and 41.00 mm in girls.

In our data analysis we also used the Z-score values method based on the stigmatic deviations, by which we could judge with a single measure the evolution in time of the body mass dimensions. This method allows a graphical representation of the somatic evolution during the growth and development processes.

The analysis of Figs. 1 and 2 leads to the following conclusions: we are dealing with a strong but not uniform sexual dimorphism, that is the body mass dimensions increase more in boys than in girls, being situated after the age of 11 in the positive register of somatic variability (especially height, weight and thorax circumference); the values corresponding to the age of 14 are placed between the negative and the positive registers, without significant somatic changes, allowing the claim that after the age of 15 a second growth phase occurs.

If we analyze the negative register placed between 11–14 years of age, we find a higher increase rate in boys and girls as compared with the one after the age of 15 and this is related to the stigmatic deviation of 0.00, confirming the conclusions drawn from the body mass dimensions variability by age.

2. The Quetelet body mass index

Adolescence is an important period in the human growth and maturation, offering a last chance to implement some activities meant to prevent adults' health problems.

Anthropometrics has a particular importance during adolescence, since it allows monitoring and assessing the changes of hormonal origin regarding growth and development throughout this period. Moreover, growth might become receptive to nutritional lack or excess, thus anthropometrics being able to provide indicators of the nutritional status and health risk or even to diagnose obesity.

The raise of obesity and its sequels has become a public health problem and has launched again the interest for anthropometrical antecedents from adolescence regarding obesity in adulthood and risks associated with this period.

In this context it is important to highlight the extent to which anthropometrics in adolescence could be predictive for risk and disease factors in adult life.

At a populational level, some transversal studies have shown that under inauspicious conditions a recovery of growth during adolescence could emerge without specific interventions. In other cases, detailed surveys on teenagers have indicated that subjects growth – retarded at the beginning of childhood-have maintained this delay during adolescence.

Growth retard has unfavorable consequences for adulthood.

On the other side, an additional burden imputable to fattening could determine a compression of the intervertebral disks and a distortion of position sufficient to bring about stature decrease.

Lean body mass in teenagers, associated with a reduced bony mass at the beginning of adult age, might entail a high risk of post-menopausal osteoporosis, along with its sequels.

Chronic undernutrition and poor body mass noticed during adolescence in numerous populations from different countries constitute specific risk factors for subsequent osteoporosis.

A high Quetelet index represents an increased risk for some chronic diseases in the adult person.

A high body mass index and an increased weight are predictive risk factors of some chronic diseases at the beginning of the adult period.

Use of the Quetelet index was recommended by WHO sources in order to establish a classification scale for underweight and overweight in teenagers, at the population level.

- growth retard, having height/weight as anthropometrical variables, corresponds to values < 3rd percentile or Z-score values < -2;
- underweight, having Quetelet index/age as anthropometrical variables, corresponds to values < 5th percentile;
- risk of overweight, having Quetelet index/age as anthropometrical variables, corresponds to values between 85th and 95th percentile;
- obesity, having Quetelet index/age as anthropometrical variables, corresponds to values $\geq$ 95th percentile; $\geq$ 90th percentile for the tricipital skinfold and $\geq$ 90th percentile for the underscapular skinfold.

The average values of thorax and waist circumferences were also investigated in some researches, in correlation with underweight or overweight.

In the first part of our paper, we presented the variability of some anthropometrical dimensions, some of them parts of the body mass index equation.

BMI-for-age is a method for screening overweight and underweight in children and adolescents from 2 to 20 years of age. There are no recognized standards to define satisfactorily the lower limits of BMI-for-age for children and adolescents. Research is needed to determine the validity of using BMI-for-age to screen for underweight.

BMI is age and gender specific and the nutritional status is identified based on percentiles.

We recorded the mean values of BMI by sex and age in Table 3.

As a first observation, we can note that the male series presents a BMI increase from 18.83 to 21.78, significantly higher than the female series that displays a BMI increase from 18.38 to 20.68.

We recorded significant differences between the mean BMI values in the male series as compared with the female one for the 16, 17 and 18 years old.

We calculated the Quetelet index (BMI) percentiles for age and sex (Table 4).

For the male series aged 11, the analysis of the mean BMI values indicates the following: the value of 14.28, corresponding to the 3rd percentile, points out a physical growth retard; the value of 14.48, corresponding to the 5th percentile, signifies underweight. BMI values of 21.94 and 26.58, corresponding to the 85th and 95th percentiles interval, could be classified as risk of overweight; between the 95th and 97th percentiles, encompassing BMI values of 26.58 and 28.05, we are dealing with overweight.

For the female series aged 11, the analysis of the average BMI values indicates the following: at the 3rd percentile we noticed a BMI value of 14.27 (this value or a lower one indicates a delay in the stature and weight growth); a BMI value of 14.72 illustrates the 5th percentile, indicating underweight. Risk of overweight lies over BMI values of 21.38 and 24.28, corresponding to the 85th and 95th percentiles. We can properly talk about overweight between the 95th and 97th percentiles, encompassing BMI values of 24.28 and 25.37.

For the boys series aged 12, the 3rd percentile has a BMI value of 14.72; the 5th percentile has a BMI value of 14.93. Risk of overweight lies over the 85th (BMI = 22.59) and 95th (BMI = 25.28) percentiles; overweight, potential obesity, covers the 95th (BMI = 25.28) and 97th (BMI = 25.58) percentiles.

For the girls series aged 12, the 3rd percentile has a BMI value of 14.46; the 5th percentile has a BMI value of 14.82 (up to this value we talk about underweight); risk of overweight covers the BMI values of 22.36 and 24.51, representing the 85th and 95th percentiles; overweight range encompasses the 95th (BMI = 24.51) and 97th (BMI = 25.05) percentiles.

For the male series aged 13, the 3rd percentile has a BMI value of 14.78; the 5th percentile corresponds to a BMI value of 15.18; risk of overweight covers the BMI values of 23.38 (i.e., the 85th percentile) and 26.07 (that is the 95th percentile); overweight ranges between the 95th and 97th (BMI = 26.88) percentiles.

For the female series aged 13, the 3rd percentile has a BMI value of 15.74; for the 5th percentile we recorded a BMI value of 16.02; risk of overweight varies between a BMI value of 22.21 (the 85th percentile) and 25.85 (the 95th percentile); overweight covers the 95th and 97th (BMI = 26.26) percentiles.

For the male series aged 14, the 3rd percentile has a BMI value of 15.16; for the 5th percentile we recorded a BMI value of 15.96; risk of overweight fluctuates between a BMI value of 23.05 (the 85th percentile) and 27.60 (the 95th percentile); potentially pathological overweight covers the 95th (BMI = 27.60) and 97th (BMI = 27.86) percentiles.

For the female series aged 14, the 3rd percentile corresponds to a BMI value of 15.65; the 5th percentile corresponds to a BMI value of 16.51; risk of overweight

fluctuates between the 85th (BMI = 22.88) and 95th (BMI = 25.16) percentiles; overweight ranges between the 95th and 97th percentiles (BMI = 26.79).

For the male series aged 15, the 3rd percentile has a BMI value of 16.31 and the 5th a BMI value of 16.51; risk of overweight fluctuates between a BMI value of 23.00 (the 85th percentile) and 26.66 (the 95th percentile); potentially pathological overweight covers the 95th and 97th percentiles (BMI = 27.77).

For the female series aged 15, the 3rd percentile corresponds to a BMI value of 16.58 and the 5th one a BMI value of 16.85; risk of overweight fluctuates between the BMI values 23.19–25.95 (between the 85th and the 95th percentiles); overweight varies between the 95th percentile (BMI = 25.95) and the 97th percentile (BMI = 27.04).

For the male series aged 16, we recorded a BMI value of 16.80 for the 3rd percentile and a BMI value of 17.23 for the 5th one; risk of overweight ranges between a BMI value of 23.09 (the 85th percentile) and 25.51 (the 95th percentile); overweight could be found between the 95th and 97th percentiles (BMI = 25.90).

For the female series aged 16, the 3rd percentile corresponds to a BMI value of 16.80 and the 5th one to a BMI value of 17.23; risk of overweight ranges between the 85th percentile (BMI = 23.09) and 95th percentile (BMI = 25.21); overweight covers the 95th and 97th percentiles (BMI = 27.77).

For the male series aged 17, the BMI value of 17.48 corresponds to the 3rd percentile, while the BMI value of 18.25 corresponds to the 5th percentile; the BMI values of 24.47 and 27.67 correspond to the 85th and 95th percentiles, being the risk limits of overweight; overweight encompasses the 95th and 97th percentiles (BMI = 29.64).

For the female series aged 17, we recorded a BMI value of 16.83 corresponding to the 3rd percentile, and one of 17.39 corresponding to the 5th percentile; risk of overweight ranges between a BMI value of 22.87 (the 85th percentile) and a BMI value of 25.27 (the 95th percentile); overweight covers BMI values higher than 26.58.

For the male series aged 18, the 3rd percentile corresponds to a BMI value of 17.89, while the 5th percentile corresponds to a BMI value of 18.01; risk of overweight ranges between a BMI value of 25.02 (the 85th percentile) and a BMI value of 27.57 (the 95th percentile); overweight could be found beyond the 95th percentile.

For the female series aged 18, the 3rd percentile corresponds to a BMI value of 16.57 and the 5th percentile corresponds to a BMI value of 17.15; risk of overweight ranges between a BMI value of 22.96 (the 85th percentile) and a BMI value of 27.13 (the 95th percentile); overweight varies between a BMI value of 27.13 and one of 28.51 (Table 4).

Table 1

Some body dimensions' variability by age in boys series, general total

Age 11							
Dimensions	N	Average	σ	Minimum	Maximum	Var. Q.	Std. Dev.
Height	158	1475.43	79.50	1255	1736	5.39	-1.01
Sitting height	158	766.15	38.73	683	893	5.06	-0.92
Length of inferior limb	158	709.18	49.46	572	854	6.97	-0.97
Weight	158	41.46	10.96	21	80	26.43	-0.64
Thorax perimeter	158	741.92	86.07	580	980	11.60	-0.55
Waist perimeter	158	696.96	99.58	540	990	14.29	-0.24
Age 12							
Dimensions	N	Average	σ	Minimum	Maximum	Var. Q.	Std. Dev.
Height	174	1542.91	80.13	1355	1741	5.19	-0.38
Sitting height	174	794.60	42.22	680	900	5.31	-0.42
Length of inferior limb	174	748.32	46.76	633	879	6.25	-0.28
Weight	174	45.80	10.01	27	75	21.85	-0.29
Thorax perimeter	174	771.81	75.16	620	1010	9.74	-0.22
Waist perimeter	174	712.78	87.84	515	1000	12.32	-0.08
Age 13							
Dimensions	N	Average	σ	Minimum	Maximum	Var. Q.	Std. Dev.
Height	216	1606.97	80.92	1410	1865	5.04	0.22
Sitting height	216	828.02	45.40	710	954	5.48	0.16
Length of inferior limb	216	778.95	44.41	662	920	5.70	0.25
Weight	216	51.24	11.55	29	88	22.53	0.14
Thorax perimeter	216	801.25	87.22	605	1105	10.89	0.11
Waist perimeter	216	727.04	97.06	555	1105	13.35	0.07
Age 14							
Dimensions	N	Average	σ	Minimum	Maximum	Var. Q.	Std. Dev.
Height	241	1663.29	84.11	1383	1861	5.06	0.74
Sitting height	241	862.89	49.21	720	1003	5.70	0.77
Length of inferior limb	241	799.99	46.78	663	930	5.85	0.62
Weight	241	55.69	12.27	28	97	22.04	0.50
Thorax perimeter	241	828.92	87.33	635	1130	10.54	0.42
Waist perimeter	241	733.93	94.42	560	1065	12.87	0.15

Age 15							
Dimensions	N	Average	σ	Minimum	Maximum	Var. Q.	Std. Dev.
Height	134	1719.19	81.67	1525	1930	4.75	-0.31
Sitting height	134	905.11	44.07	715	1010	4.87	-0.41
Length of inferior limb	134	814.08	49.26	691	934	6.05	-0.11
Weight	134	60.37	10.85	32	94	17.98	-0.42
Thorax perimeter	134	853.20	74.67	670	1110	8.75	-0.51
Waist perimeter	134	745.49	78.17	570	985	10.49	-0.29
Age 16							
Dimensions	N	Average	σ	Minimum	Maximum	Var. Q.	Std. Dev.
Height	146	1731.69	75.62	1409	1899	4.37	-0.13
Sitting height	146	912.97	44.61	734	1005	4.89	-0.22
Length of inferior limb	146	818.73	44.95	673	950	5.49	-0.01
Weight	146	64.75	12.01	32	112	18.55	-0.03
Thorax perimeter	146	885.87	80.05	710	1240	9.04	-0.09
Waist perimeter	146	778.40	99.76	640	1230	12.82	0.07
Age 17							
Dimensions	N	Average	σ	Minimum	Maximum	Var. Q.	Std. Dev.
Height	141	1752.48	57.54	1600	1890	3.28	0.16
Sitting height	141	930.79	34.57	825	1026	3.71	0.21
Length of inferior limb	141	821.69	39.51	698	904	4.81	0.06
Weight	141	67.35	11.22	49	106	16.65	0.20
Thorax perimeter	141	910.52	74.47	775	1180	8.18	0.22
Waist perimeter	141	774.94	94.64	600	1250	12.21	0.03
Age 18							
Dimensions	N	Average	σ	Minimum	Maximum	Var. Q.	Std. Dev.
Height	168	1756.80	63.00	1558	1943	3.59	0.22
Sitting height	168	935.97	33.81	856	1020	3.61	0.34
Length of inferior limb	168	820.83	45.68	687	961	5.56	0.04
Weight	168	67.27	9.95	46	103	14.79	0.19
Thorax perimeter	168	916.19	68.13	785	1130	7.44	0.30
Waist perimeter	168	784.73	84.41	605	1060	10.76	0.14

Table 2

Some body dimensions' variability by age in girls series, general total

Age 11							
DIMENSIONS	N	Average	σ	Minimum	Maximum	Var. Q.	Std. Dev.
Height	146	1488 50	67 98	1332	1663	4 57	-0 99
Sitting height	146	783 37	44 53	620	897	5 69	-0 97
Length of inferior limb	146	704 99	37 04	617	823	5 25	-0 73
Weight	146	41 03	8 83	25	69	21 52	-0 73
Thorax perimeter	146	747 77	74 76	610	930	10 00	-0 67
Waist perimeter	146	652 77	78 95	530	890	12 09	-0 31
Age 12							
DIMENSIONS	N	Average	σ	Minimum	Maximum	Var. Q.	Std. Dev.
Height	193	1547 77	73 22	1296	1736	4 73	-0 23
Sitting height	193	816 52	44 14	695	913	5 41	-0 26
Length of inferior limb	193	731 81	42 39	601	856	5 79	-0 12
Weight	193	45 84	9 19	28	82	20 04	-0 22
Thorax perimeter	193	786 94	76 42	635	990	9 71	-0 14
Waist perimeter	193	677 12	79 57	545	910	11 75	0 02
Age 13							
DIMENSIONS	N	Average	σ	Minimum	Maximum	Var. Q.	Std. Dev.
Height	225	1583 60	65 18	1393	1761	4 12	0 23
Sitting height	225	835 60	36 62	720	930	4 38	0 16
Length of inferior limb	225	748 00	43 98	641	869	5 88	0 24
Weight	225	49 30	8 37	34	84	16 97	0 14
Thorax perimeter	225	805 57	66 41	620	1040	8 24	0 11
Waist perimeter	225	676 19	70 95	553	975	10 49	0 01
Age 14							
DIMENSIONS	N	Average	σ	Minimum	Maximum	Var. Q.	Std. Dev.
Height	272	1604 73	60 40	1418	1796	3 76	0 50
Sitting height	272	854 91	33 81	725	945	3 96	0 57
Length of inferior limb	272	749 86	40 32	655	865	5 38	0 28
Weight	272	52 11	8 44	32	81	16 19	0 44
Thorax perimeter	272	824 78	62 35	650	1030	7 56	0 37
Waist perimeter	272	686 07	65 83	545	965	9 60	0 14

Age 15							
DIMENSIONS	N	Average	σ	Minimum	Maximum	Var. Q.	Std. Dev.
Height	228	1621.36	60.44	1441	1803	3.73	-0.03
Sitting height	228	873.32	31.57	786	963	3.61	-0.15
Length of inferior limb	228	748.04	42.57	639	871	5.69	0.08
Weight	228	54.42	8.35	36	90	15.35	-0.01
Thorax perimeter	228	837.94	58.67	700	1070	7.00	-0.01
Waist perimeter	228	689.05	62.34	580	980	9.05	0.02

Age 16							
DIMENSIONS	N	Average	σ	Minimum	Maximum	Var. Q.	Std. Dev.
Height	274	1617.81	59.17	1475	1770	3.66	-0.09
Sitting height	274	875.51	30.88	790	960	3.53	-0.09
Length of inferior limb	274	742.30	41.51	626	868	5.59	-0.06
Weight	274	53.78	7.46	35	83	13.86	-0.08
Thorax perimeter	274	833.54	50.09	715	1050	6.01	-0.08
Waist perimeter	274	682.08	59.31	530	940	8.70	-0.10

Age 17							
DIMENSIONS	N	Average	σ	Minimum	Maximum	Var. Q.	Std. Dev.
Height	296	1622.80	63.32	1438	1925	3.90	0.01
Sitting height	296	880.69	34.31	795	1017	3.90	0.07
Length of inferior limb	296	742.11	41.23	636	908	5.56	-0.07
Weight	296	54.60	8.01	37	94	14.68	0.01
Thorax perimeter	296	841.92	54.62	700	1040	6.49	0.06
Waist perimeter	296	688.61	58.24	580	945	8.46	0.01

Age 18							
DIMENSIONS	N	Average	σ	Minimum	Maximum	Var. Q.	Std. Dev.
Height	226	1632.72	62.96	1483	1822	3.86	0.15
Sitting height	226	884.33	36.85	790	1000	4.17	0.17
Length of inferior limb	226	748.39	41.36	656	845	5.53	0.08
Weight	226	55.22	9.09	38	91	16.46	0.09
Thorax perimeter	226	844.12	56.65	730	1050	6.71	0.09
Waist perimeter	226	693.77	66.15	570	940	9.53	0.09

Table 3

Variability of the Quetelet Index (BMI) by age

AGE	BOYS						GIRLS					
	N	Mean	σ	Minimum	Maximum	Var. Q.	N	Mean	σ	Minimum	Maximum	Var. Q.
11	158	18.83	3.60	12.68	29.37	19.10	146	18.38	3.05	12.72	28.19	16.61
12	174	19.09	3.05	12.47	27.11	15.97	193	19.03	2.95	12.98	27.40	15.49
13	216	19.68	3.36	13.94	29.52	17.08	225	19.62	2.87	14.11	28.62	14.62
14	241	19.98	3.34	14.24	30.00	16.71	272	20.19	2.75	14.36	30.86	13.63
15	134	20.34	2.91	13.76	29.76	14.31	228	20.70	2.98	14.78	30.75	14.38
16	146	21.53	3.43	15.74	33.81	15.94	274	20.54	2.54	14.75	30.05	12.39
17	141	21.89	3.27	16.20	32.38	14.95	296	20.69	2.46	15.83	29.93	11.89
18	168	21.78	2.91	16.90	31.03	13.35	226	20.68	3.00	15.27	32.11	14.50

Table 4

Some BMI percentiles by age and sex

SEX	Age (years)	BMI PERCENTILES					
		3*	5*	15*	50*	85*	95*
Male	11	14.28	14.48	15.52	17.92	21.94	26.58
	12	14.72	14.93	16.23	18.57	22.59	25.28
	13	14.78	15.18	16.40	18.85	23.38	26.07
	14	15.16	15.96	16.78	19.37	23.05	27.60
	15	16.31	16.51	17.95	19.72	23.00	26.66
	16	16.41	17.28	18.33	20.65	24.79	28.59
	17	17.48	18.25	19.27	21.08	24.47	27.67
	18	17.89	18.01	18.94	21.00	25.02	27.57
Female	11	14.27	14.72	15.57	17.82	21.38	24.28
	12	14.46	14.82	16.14	18.56	22.36	24.51
	13	15.74	16.02	16.99	19.14	22.21	25.85
	14	15.65	16.51	17.48	20.00	22.88	25.16
	15	16.58	16.85	17.91	20.36	23.19	25.95
	16	16.80	17.23	18.07	20.27	23.09	25.21
	17	16.83	17.39	18.35	20.44	22.87	25.27
	18	16.57	17.15	18.24	20.18	22.96	27.13

Table 5

Frequency of BMI percentiles by age and sex

BOYS																
PERCENTILES	Age 11		Age 12		Age 13		Age 14		Age 15		Age 16		Age 17		Age 18	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
<3*	6	3,80	6	3,45	7	3,24	8	3,32	5	3,73	5	3,42	5	3,55	7	4,17
3* - 5*	2	1,27	3	1,72	5	2,31	5	2,07	2	1,49	3	2,05	3	2,13	3	1,79
5* - 15*	16	10,13	18	10,34	21	9,72	24	9,96	13	9,70	14	9,59	14	9,93	16	9,52
15* - 50*	55	34,81	60	34,48	75	34,72	85	35,27	49	36,57	51	34,93	49	34,75	58	34,52
50* - 85*	55	34,81	61	35,06	75	34,72	83	34,44	45	33,58	51	34,93	49	34,75	59	35,12
85* - 95*	16	10,13	17	9,77	23	10,65	24	9,96	13	9,70	14	9,59	14	9,93	16	9,52
95* - 97*	3	1,90	3	1,72	3	1,39	4	1,66	3	2,24	3	2,05	2	1,42	3	1,79
>97*	5	3,16	6	3,45	7	3,24	8	3,32	4	2,99	5	3,42	5	3,55	6	3,57
TOTAL	158	100	168	100	209	100	233	100	130	100	141	100	136	100	162	100
GIRLS																
PERCENTILES	Age 11		Age 12		Age 13		Age 14		Age 15		Age 16		Age 17		Age 18	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
<3*	5	3,42	6	3,11	8	3,56	9	3,31	7	3,07	9	3,28	9	3,04	7	3,10
3* - 5*	3	2,05	4	2,07	4	1,78	6	2,21	5	2,19	5	1,82	6	2,03	6	2,65
5* - 15*	14	9,59	20	10,36	22	9,78	26	9,56	24	10,53	28	10,22	30	10,14	21	9,29
15* - 50*	51	34,93	68	35,23	80	35,56	95	34,93	78	34,21	96	35,04	103	34,80	80	35,40
50* - 85*	51	34,93	66	34,20	77	34,22	95	34,93	80	35,09	95	34,67	104	35,14	78	34,51
85* - 95*	14	9,59	19	9,84	22	9,78	27	9,93	22	9,65	28	10,22	29	9,80	22	9,73
95* - 97*	3	2,05	4	2,07	5	2,22	5	1,84	5	2,19	4	1,46	6	2,03	5	2,21
>97*	5	3,42	6	3,11	7	3,11	9	3,1	7	3,07	9	3,28	9	3,04	7	3,10
TOTAL	146	100	193	100	225	100	272	100	228	100	274	100	296	100	226	100

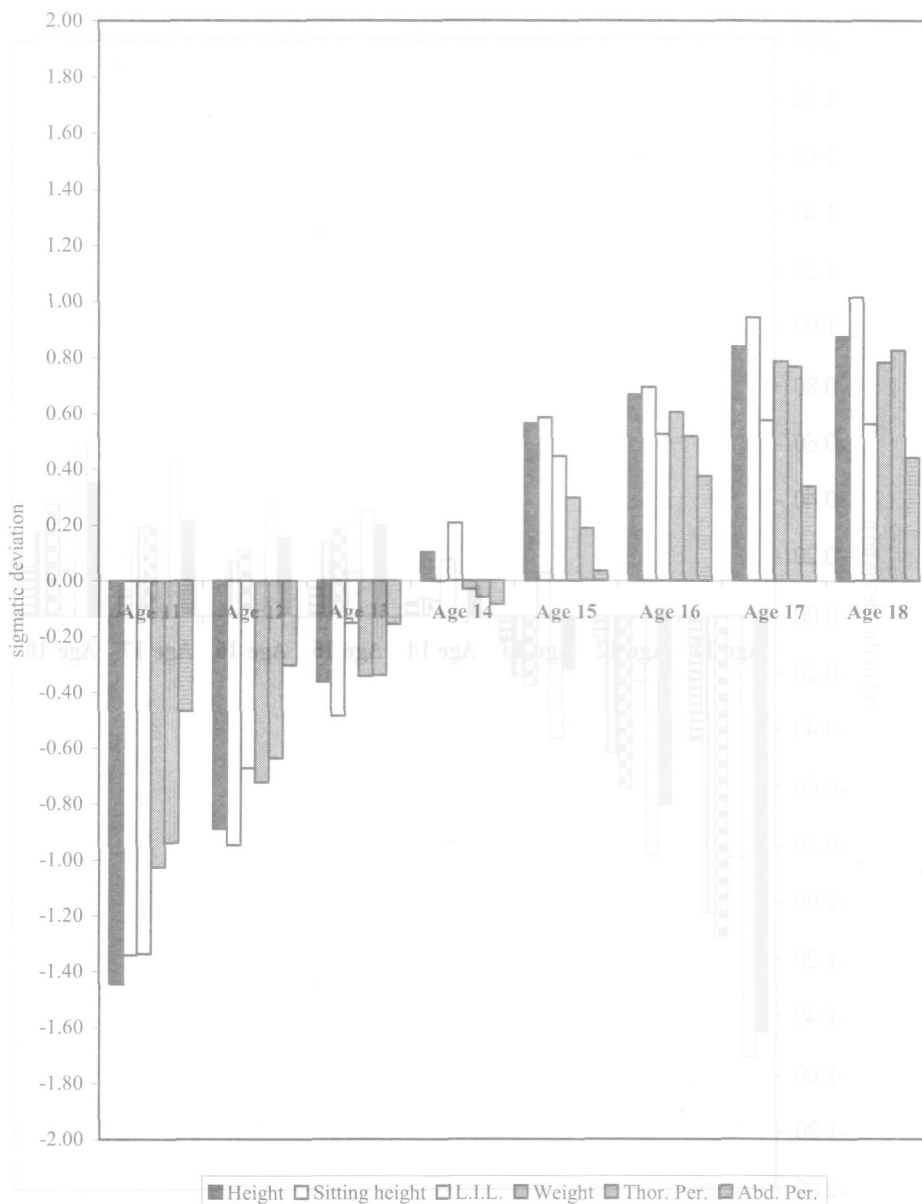


Fig. 1. – The Z-score values for the boys' series.

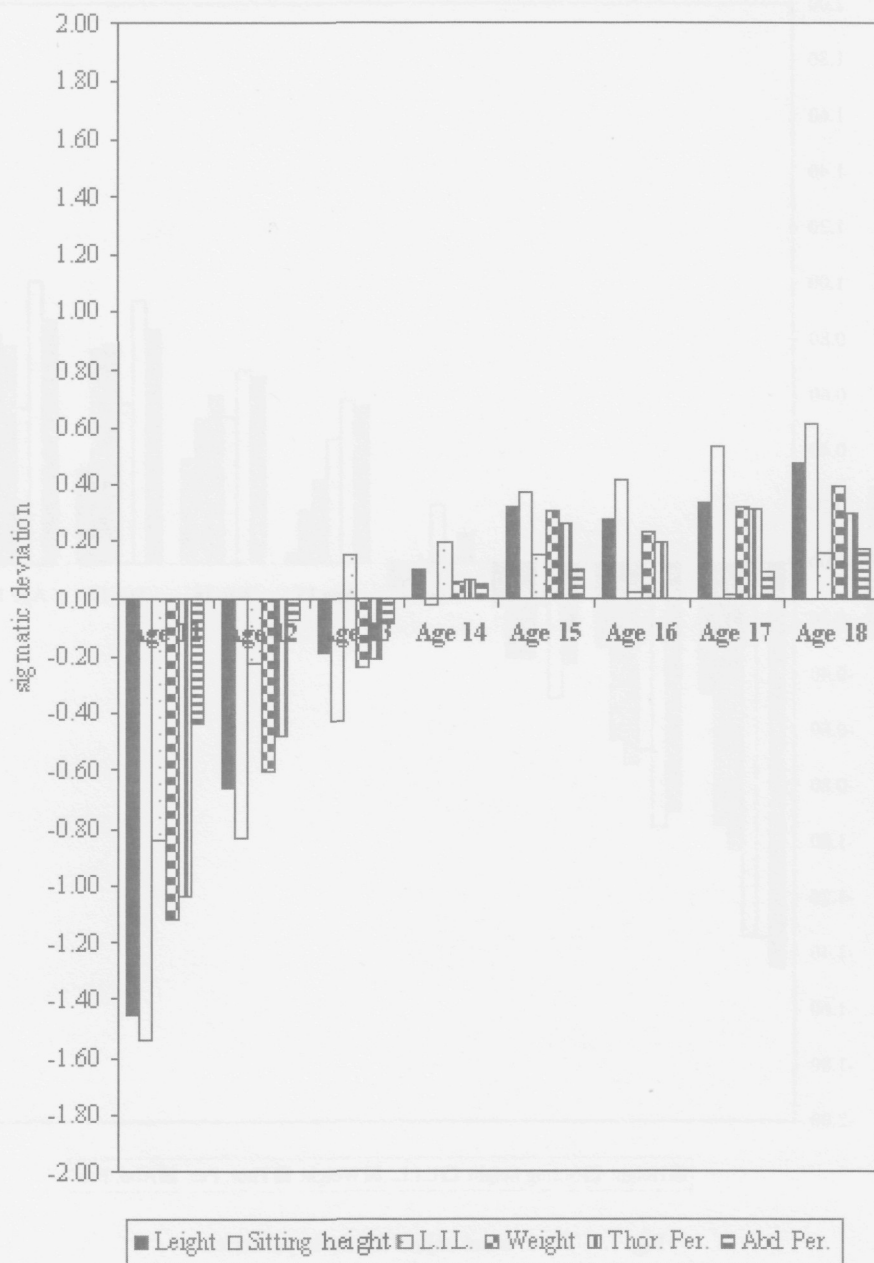


Fig. 2. – The Z-score values for the girls' series.

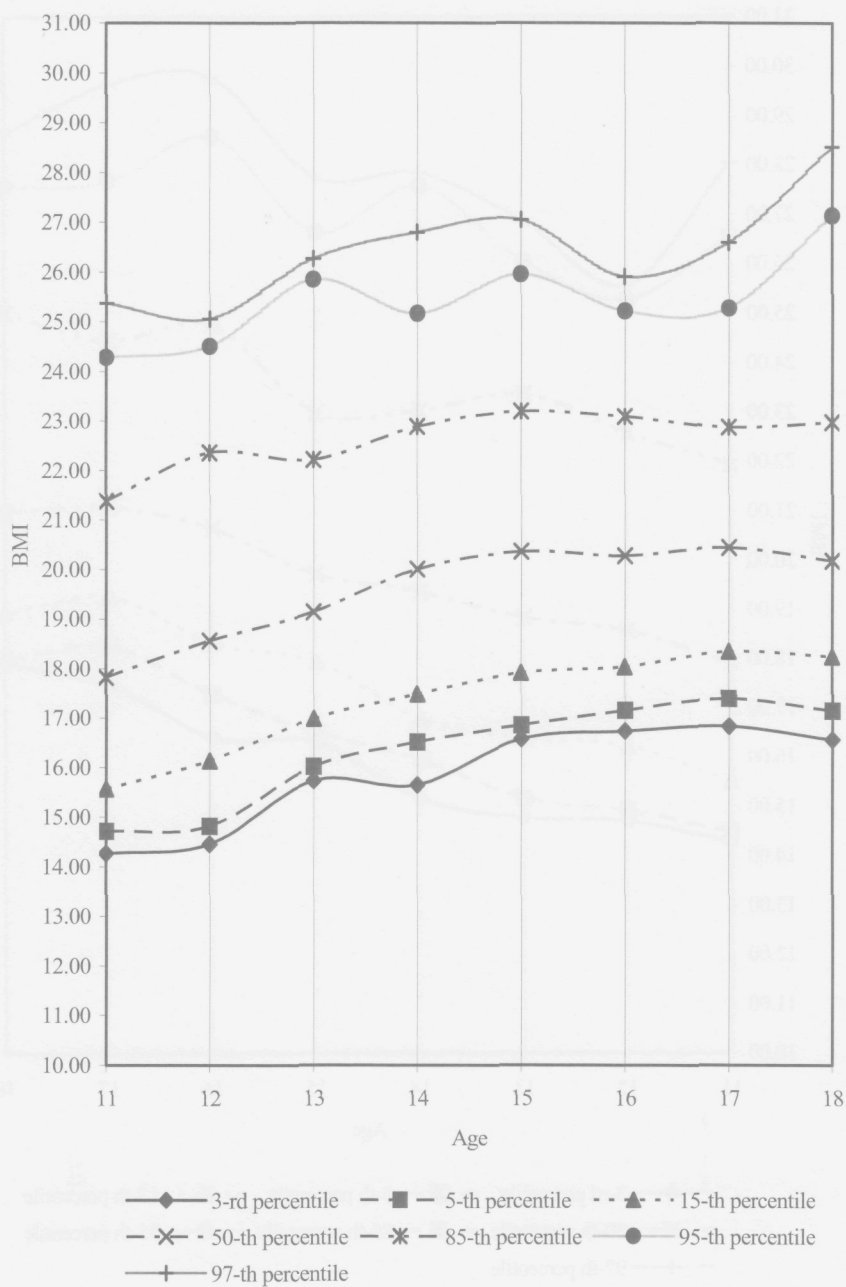


Fig. 3. – The percentiles by age in the girls' series.

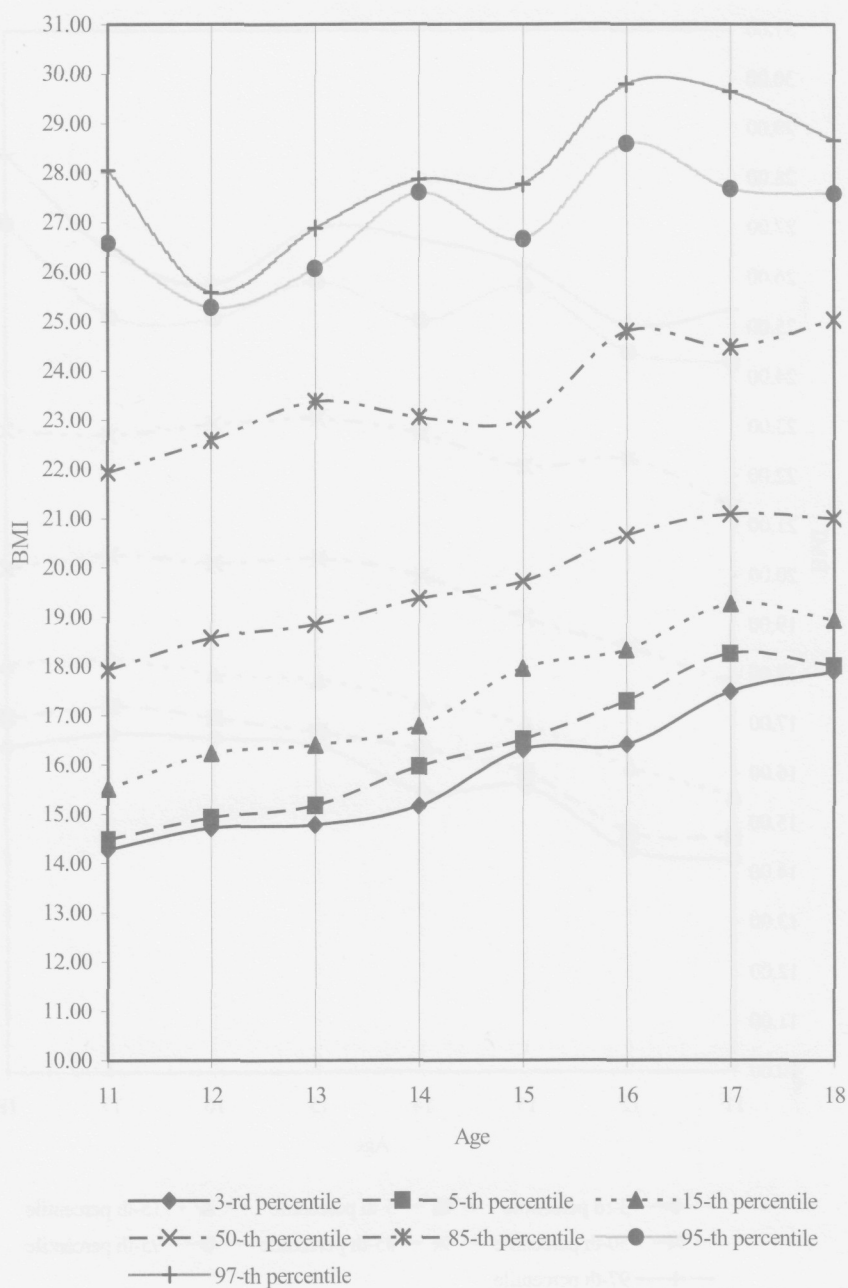


Fig. 4. – The percentiles by age in the boy's series.

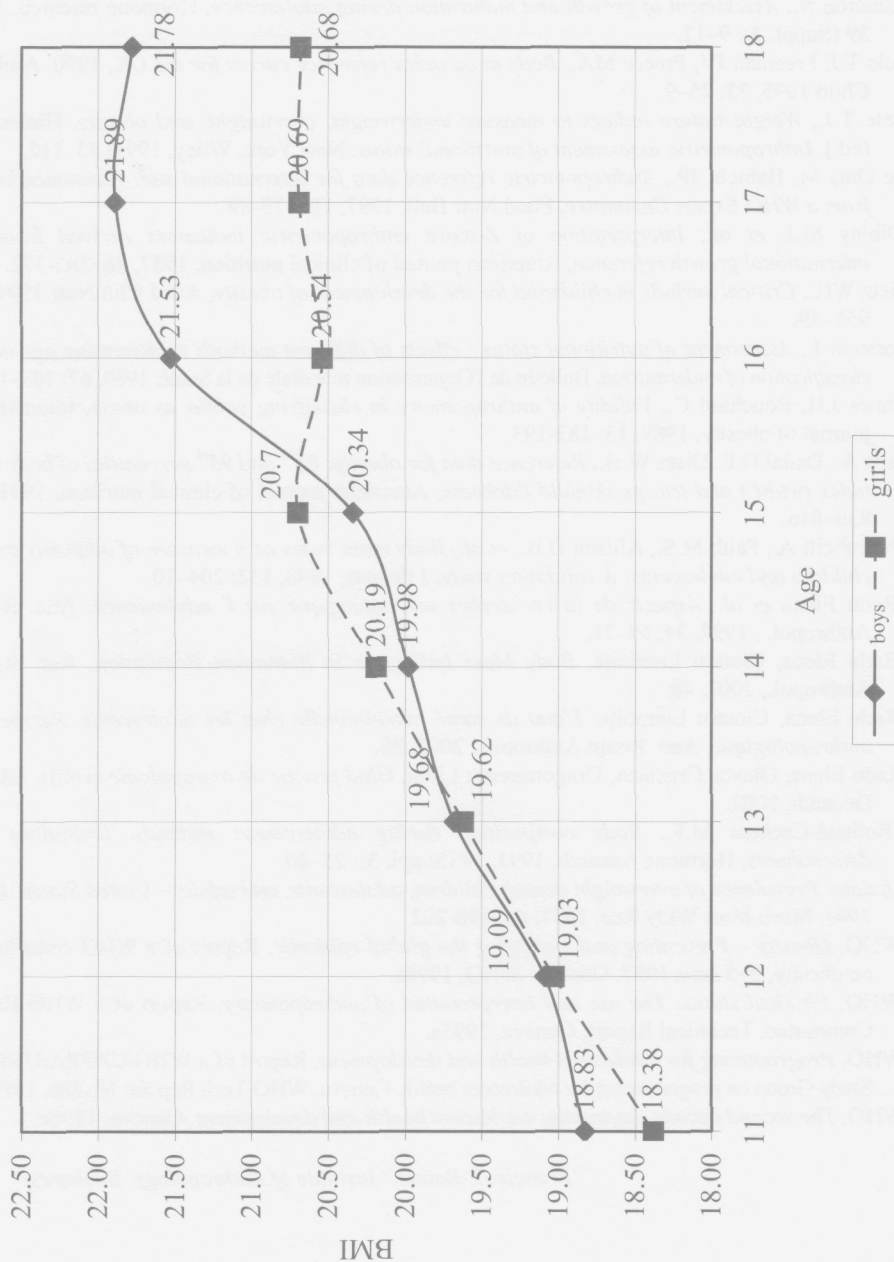


Fig. 5. – Evolution of BMI by age.

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NUTRITIONAL HEALTH HABITS IN SCHOOLCHILDREN AGED 11–18 YEARS

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Joining international concerns with the nutritional health of children and teenagers, the Romanian medical anthropology has shown during the last decades an increasing interest in investigating those risk factors that affect physical growth and development and subsequent maturity, as underweight or overweight. Advocating a weight management according to national and international standards based on anthropometrical measurements, the authors of this study focused their attention on food and physical activity related behaviors, the regularly incriminated issues for nutritional disturbances, among 3,238 pupils from Bucharest schools and high schools. The results indicate an increase of unhealthy food consumption during the school period, a decrease of physical activity (quite dramatic among the girls) and a growing incidence of tobacco and alcohol use.

Since many common illnesses in adults – like coronary disease, high blood pressure, stroke, various kinds of cancer, brittle bones, diabetes, chronic anxiety and depression – are considered having a start in younger years, a legitimate question regards the main risk factors that can be modified through lifestyle change. Evidence points towards dietary intake, physical activity and tobacco use.

Continuing a pilot-study that highlighted some theoretical and practical difficulties, in comparison with similar ones, done in western countries, the current paper exploits the outcomes of an inquiry concerning pupils' nutritional behavior. A questionnaire was applied with a view to stress mainly the subjects' knowledge and practice regarding nutrition and physical activity.

MATERIAL AND METHOD

The study sample was composed of 1,625 school children and 1,613 high school children coming from different school units and having different

* Technical assistance

socio-cultural backgrounds, a reason for which we consider it representative for a part of the urban area; nevertheless, it would be a mistake to extrapolate the results to other urban centers, without taking into account the fact that globalization trends and the lifestyle changes are more rapid and evident here. The questionnaires were slightly different for schools and high schools according to the subjects' intellectual development. The target group was submitted afterwards to a differentiation by age and sex.

DISCUSSIONS

Obesity between disease and social Stigma

Obesity is a disease, or, at least a pre-disease state, since the occurrence of chronic and degenerative diseases determined by it is without delay. So severe is this health condition, that even life insurance companies have adopted BMI as the most effective predictor of mortality.

Since in assessing overweight two components are measured – stature and weight – and the former is determined by genetics, metabolism and other influences during growth, being largely beyond personal control, all the attention has been directed to the body volume, which is influenced by diet and physical activity, the effects of obesity on health appearing to be reversible if a person loses weight.

In addition to this medical aspect, body shape and socioeconomic status of a person are related through various relations and mutual influences, according to values and affiliation.

We shall retain for the present research that modern western society values an increased muscle tissue in case of men and a reduced adiposity mass in case of women and this message is transmitted in forms that vary from gratifications and persuasive strategies to explicit discrimination.

It is obvious that teenagers are highly vulnerable to these messages and politics in the health domain must equally consider the psychological aspects of overweight.

What does reveal our questionnaire?

First of all, the concern for one's looks increases during childhood and adolescence. If differences between boys and girls are significant round the age of 11 years, they disappear round the age of 15.

Secondly, as a clear sign that maintaining a certain shape of the body is an important component of the body image, a considerable number of children (girls in a higher proportion) check frequently their weight and know what is the ideal weight for their stature, and this preoccupation tends to increase over time.

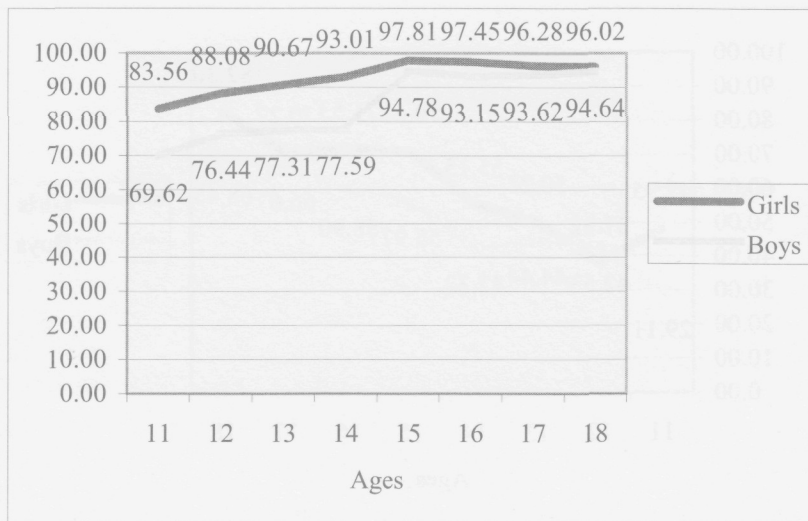


Fig. 1. – Preoccupation with the body image.

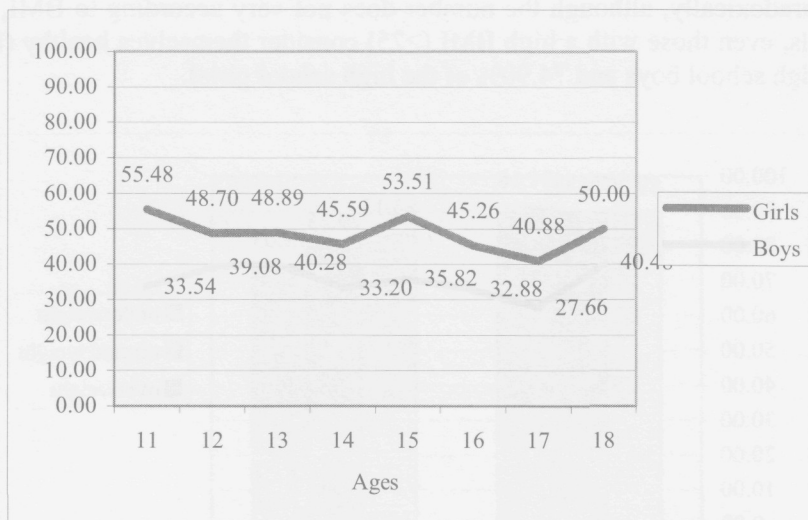


Fig. 2. – Regular self-control of weight.

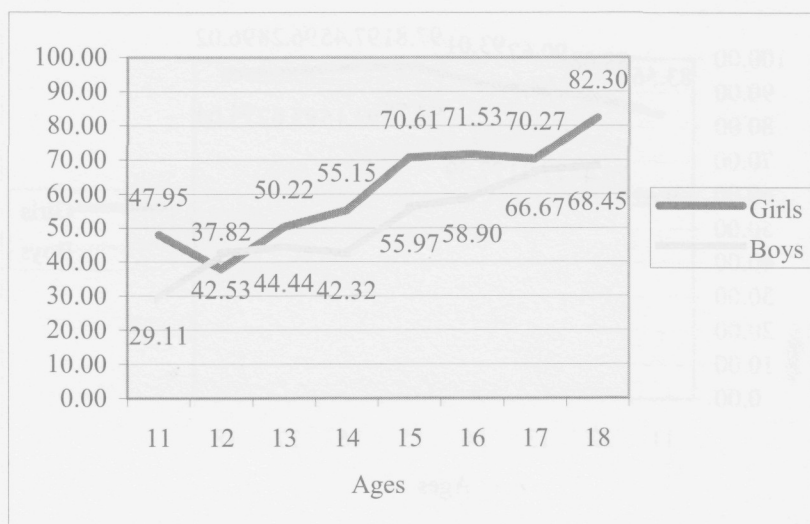


Fig. 3. – Children's knowledge about the ideal weight for their stature.

The way children regard obesity does not seem to vary much: 79.12% of high school boys and 89.75% of high school girls consider it a disease.

Paradoxically, although the number does not vary according to BMI, almost all pupils, even those with a high BMI (≥ 25) consider themselves healthy (86.59% of the high school boys and 74.90% of the high school girls).

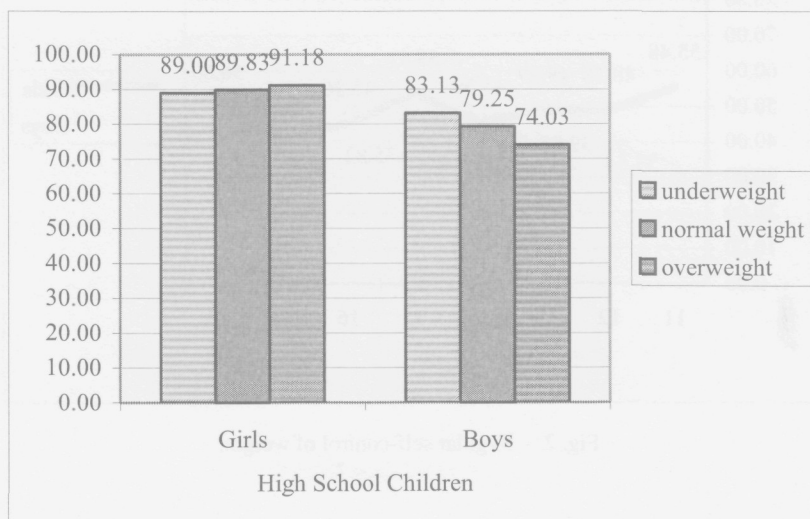


Fig. 4. – The conception of obesity as a disease.

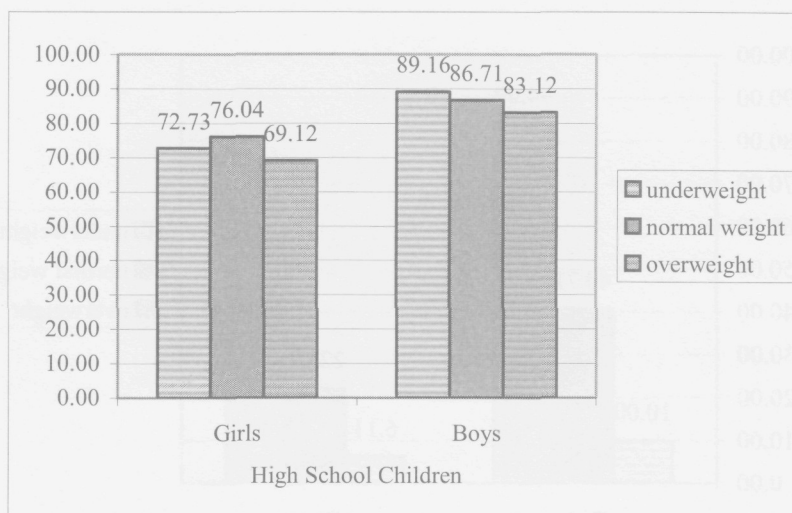


Fig. 5. – Children's positive self-estimation upon their general health.

An explanation might consist in the fact that they consider themselves only fat and not obese (which maybe they are not but certainly tend to become) and try to solve this problem.

In any case, the weight related perception is relative and distorted; therefore, we also recorded diets among those who clearly do not need them; and this, because the concern for the body image is almost inevitably and exclusively similar with resorting to diet. Quite predictable, the incidence is higher in girls.

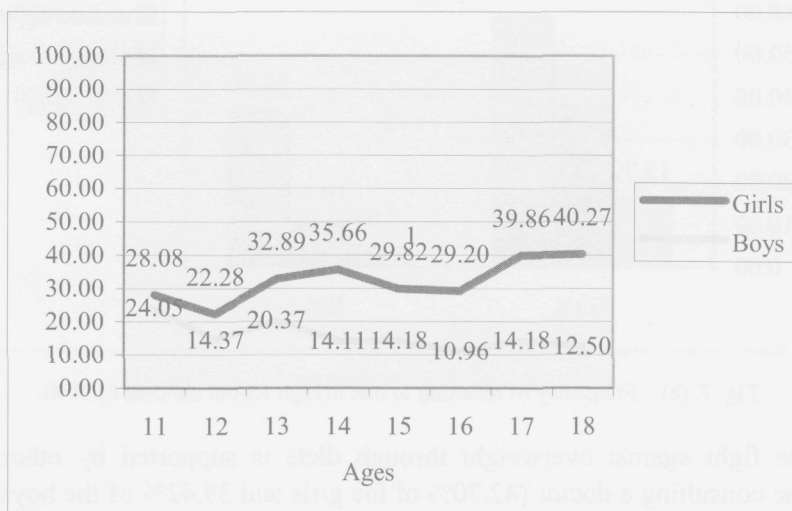


Fig. 6. – Frequency of resorting to diet by age.

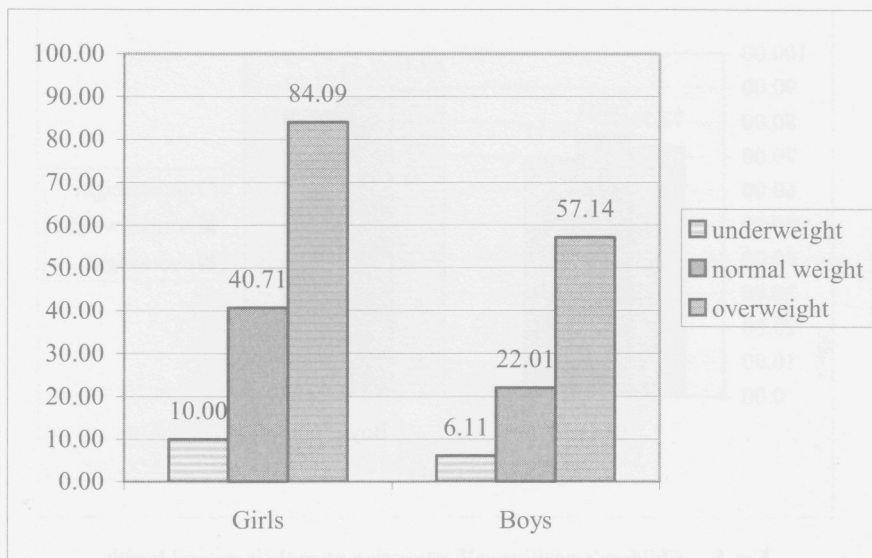


Fig. 7. (a) – Frequency of resorting to diet in secondary school children by BMI.

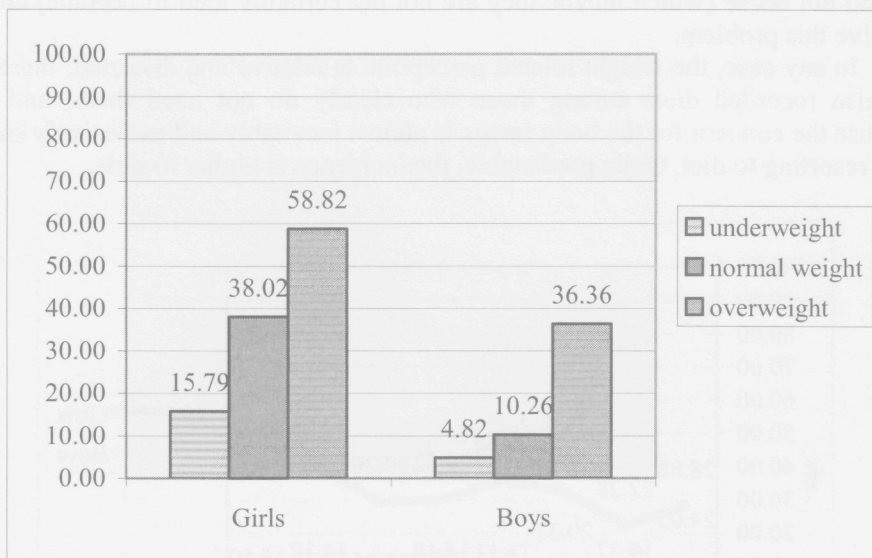


Fig. 7. (b) – Frequency of resorting to diet in high school children by BMI.

The fight against overweight through diets is supported by other several measures: consulting a doctor (42.70% of the girls and 39.42% of the boys), use of a nutrition guidebook (36.74% of the girls and 15.96% of the boys), and knowledge

of the food caloric values (27.67% of the girls and 21.93% of the boys). Regarding these aspects, we found no significant disparity in children grouped by the calculated BMI.

Food habits in family and outside

From the multitude of questions that might find their place in a research like ours, we selected only a few, which we consider extremely important for determining subjects' food behavior. Even so, the number of items in the questionnaire exceeds the space available here. Therefore, we propose only a brief presentation, hoping that omissions will not annul the validity of our findings. We shall insist upon some issues regarding the number of daily meals, the habits of skipping breakfast and eating overnight, the proportion of home prepared food in comparison with fast food, the intake of unhealthy, rich in fat and sugar foods.

We already signalized in the pilot study the existence of a cleavage between subjects' knowledge and practices, between what they know or believe that it is nutritionally healthy. This observation was reinforced. Thus, we recorded disparities between the number of adolescents who consider it important to have breakfast (93.38% of boys and 93.55% of girls) and the number of those who eat nothing in the morning (8.59% of high school boys and 9.46% of high school girls); between those who believe that snacks they eat have bad effects on their health (82.00% of high school boys and 89.00% of high school girls) and those who buy chips or other snacks in schools (66.38% of high school boys and 76.66% of high school girls); between those who do not drink milk (15.96% of high school boys and 19.82% of high school girls) and those convinced that milk is essential for health (93.72% of high school boys and 96.97% of high school girls); not to speak about the number of those who believe that animal fat is risky for health (70.46% of high school boys and 78.71% of high school girls), but find themselves among those who frequently eat butter (65.20% of high school boys and 64.84% of high school girls), pork (52.80% of high school boys and 37.40% of high school girls) and generally enjoy a meal full of fat (21.39% of high school boys and 13.77% of high school girls).

A healthy diet is one rich in fruit, vegetables and grains, i.e., nutritious but low-calorie foods and the chosen cooking method is appropriated. Consumption of starchy foods such as bread, cereals and potatoes is highly recommended for their main nutrients: carbohydrate, fiber, calcium and iron, B vitamins; however, addition of butter, oils, margarine, mayonnaise or different sauces should be avoided or kept to a minimum. Replacement of white bread with a thicker one is an advocated option, but not very popular among adolescents. Fruits and vegetables are rich sources of vitamins (among which vitamin C and carotenes are antioxidants), folates, fiber, and their intake helps reducing the amount of fat in the

diet, unless syrups, creams, fat, butter, oil are added. Consumption of milk and dairy foods, meat, fish and alternatives provides human organism with protein, calcium, zinc, iron, magnesium, vitamins (A, B Vitamins especially B12, B2, D), but maintaining a balance of foods and reducing the amount of fat, particularly saturated fatty acids entail choosing leaner cuts of meat and lower fat dairy foods and cooking methods (as grilling) which do not require added fat.

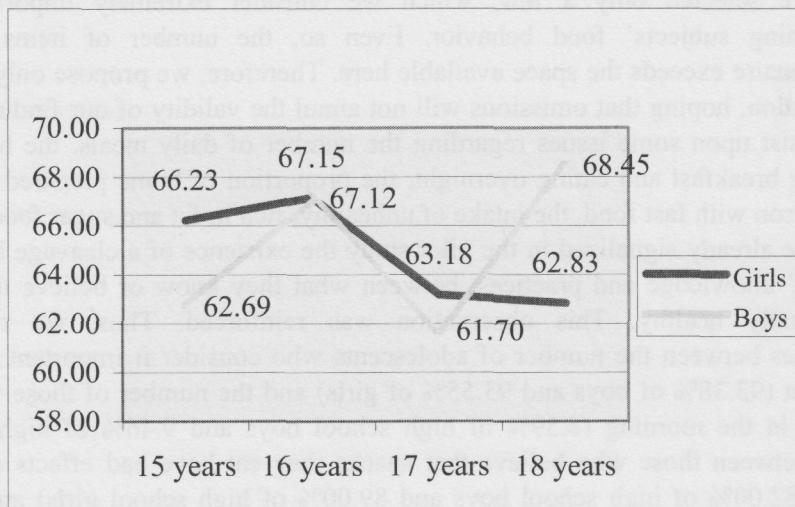


Fig. 8. – Frequent consumption of butter or margarine.

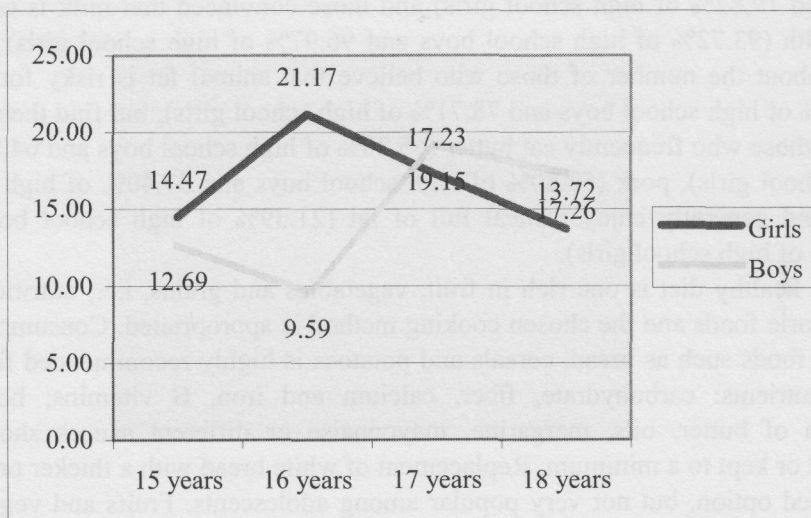


Fig. 9. – Cooking with oil and oil and fat.

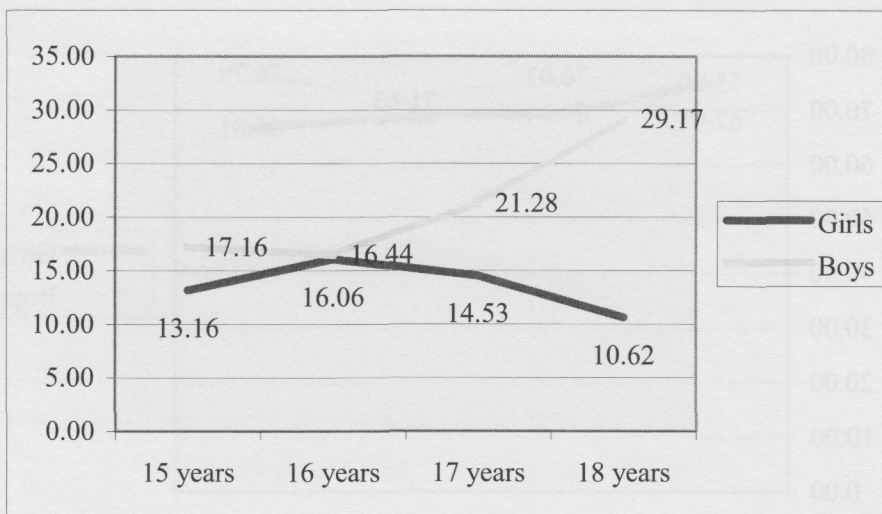


Fig. 10. – Preference to high-fat food.

As regards a balanced intake of food in our study subjects' daily diet, we conclude that only 28.36% of the boys and 32.20% of the girls eat dairy products every day, 67.91% of boys and 52.25% of the girls eat meat everyday, 62.14% of boys and 58.30% of girls eat fruits daily. Bread is not missing but only 25.64% of the subjects eat whole grain type. This means that a considerable part have an unbalanced diet.

We noticed an increased preference for unhealthy, high-calorie and nutritiously poor foods, from the snacks bought in schools to home-prepared chips and pork meals or sweets consumed anytime and anywhere. As charts show, the data indicate a variability of food behaviors by gender: while boys prefer to a greater extent foods rich in fats and particularly the ones rich in saturated fats, girls have a soft spot for sugar from sweets.

A comparison analysis of high school pupils' preferences, which takes into consideration their body mass index, clearly points out that subjects with a higher BMI have a stronger preference for foods rich in fats and sugar – chips, fast-food, sweets – than the others.

What roles do school and family play in acquiring a healthy food behavior?

Since the lack of logistic means in our school units makes the concern for ensuring at least one snack for pupils to be often equivalent to granting permission to leave the school perimeter in order to buy from the neighboring shops chips, biscuits, pastries, ice-cream, chocolate, carbonated drinks, i.e., foods containing fat and sugar, whose consumption should be reduced, the role of school remains largely just a declaration of intention.

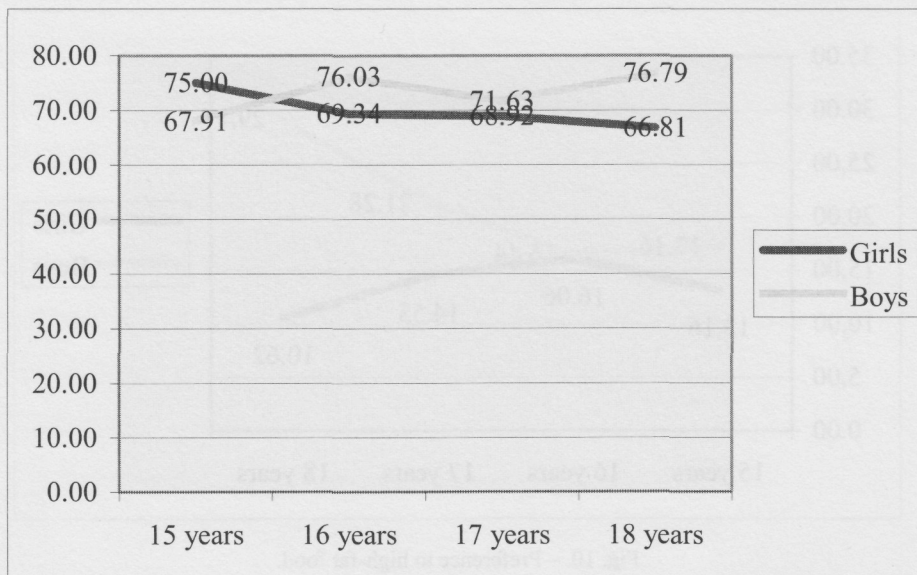


Fig. 11. – Chips consumption.

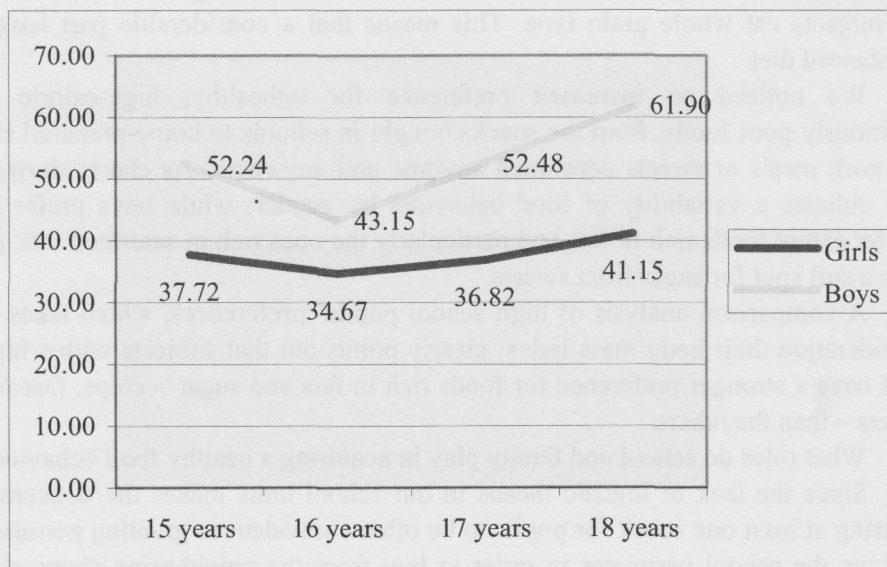


Fig. 12. – Frequent consumption of pork.

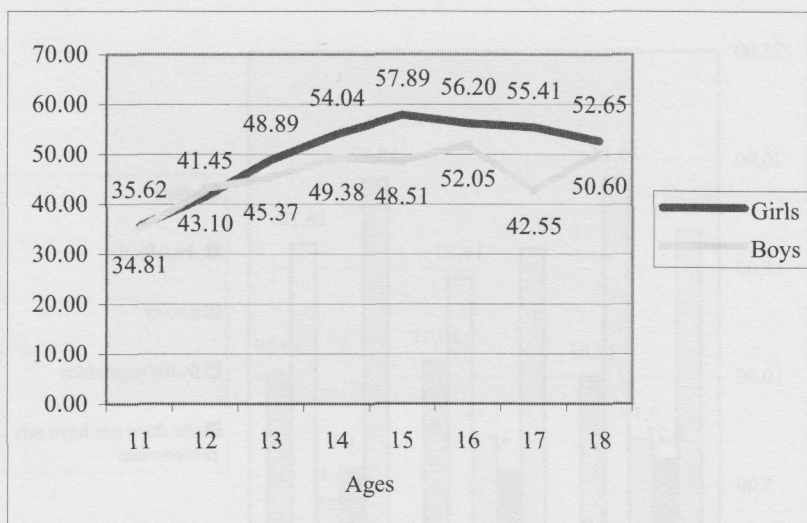


Fig. 13. – Sweets consumption.

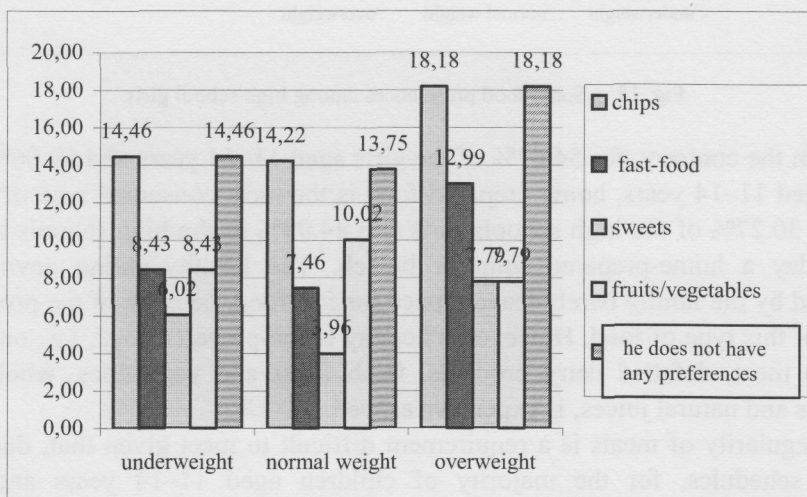


Fig. 14. – Some food preferences among high school boys.

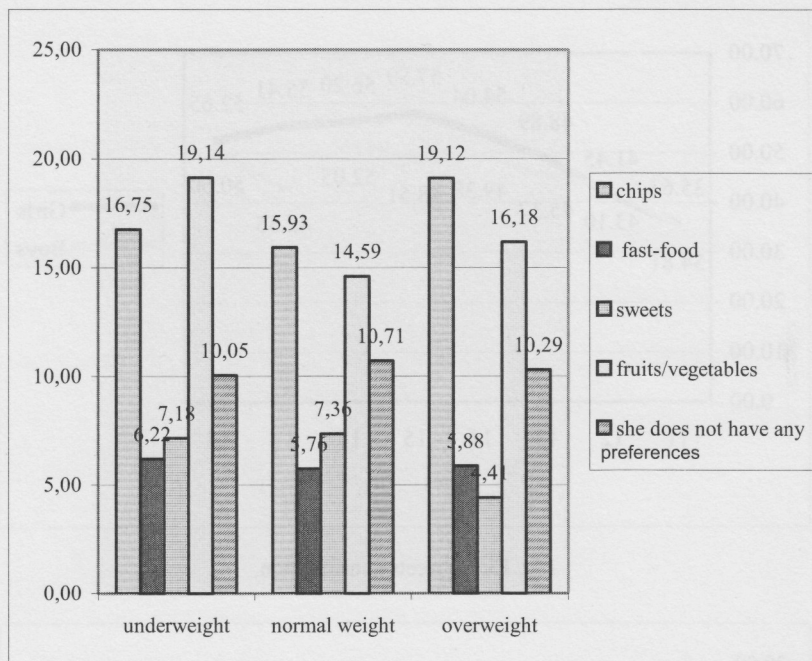


Fig. 15. – Some food preferences among high school girls.

On the contrary, for 54.67% of the girls aged 11–14 years and 59.06% of the boys aged 11–14 years, home-prepared food is the most consumed type of food in family; 30.27% of the high schools girls and 44.99% of the high schools boys eat every day a home-prepared soup or borsch. The healthy eating environment provided by the family barely leaves space for fast food, because of the prohibitive prices of this type of food. However, a healthy home-prepared food, i.e., one based on lean meat, defatted dairy products, fresh fruits and vegetables, whole grain products and natural juices, is expensive as well.

Regularity of meals is a requirement difficult to meet given that, due to the school schedules, for the majority of children aged 11–14 years and for a significant part of high school attendants, the traditional lunch is hastened and unified with breakfast or delayed and joined with dinner. The data indicate a preponderant distribution of energetic uptake in 2 or 3 meals (44.31% of the boys and 42.97% of the girls eat 3 meals per day, 21.22% of the boys and 32.91% of the girls eat 2 meals per day), representing usually lunch and dinner (for 91.68% of the boys and 88.09% of the girls). Since even when we talk about snacks between meals children mention home-prepared food (18.63% of the boys aged 11–14 years and 15.07% of the girls aged 11–14 years), it is quite reasonable to presume that a very strict delimitation of the meals is not part of their food behavior.

Two poor food habits develop on the favorable ground of a chaotic schedule: skipping breakfast and eating overnight.

Consequences appear in a relatively short term: 51.56% of the high school girls and 39.22% of the high school boys have dental problems and the incidence of digestive diseases tends to increase twofold during adolescence.

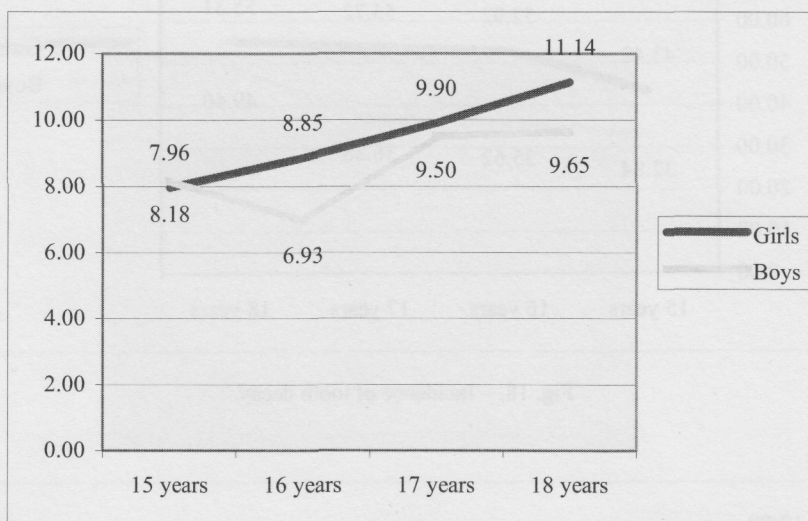


Fig. 16. – Skipping breakfast.



Fig. 17. – Eating overnight.

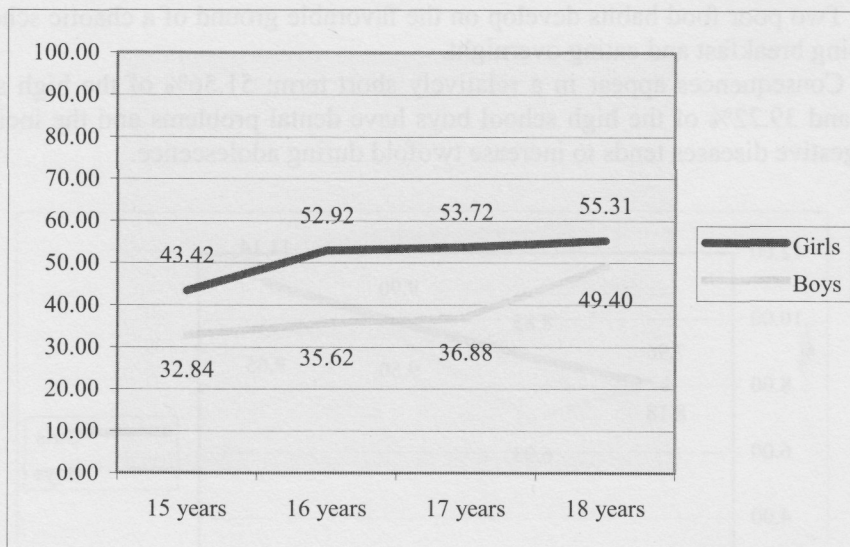


Fig. 18. – Incidence of tooth decay.

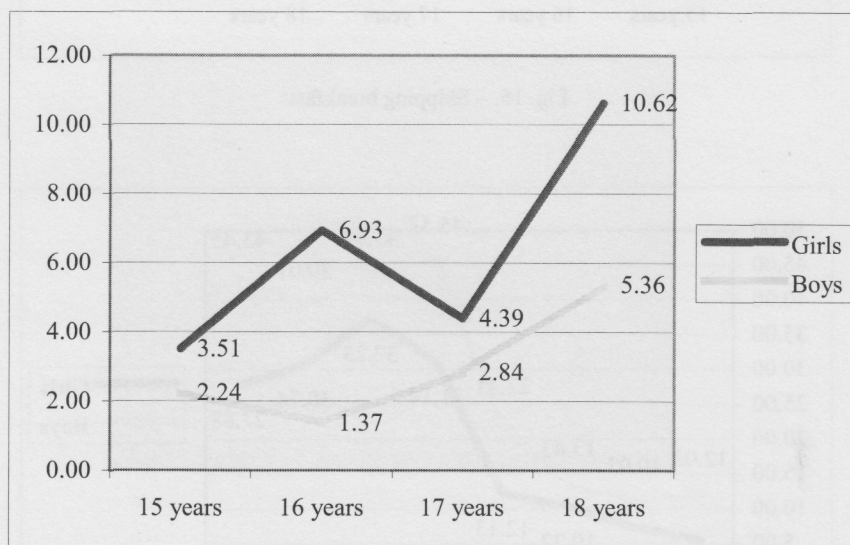


Fig. 19. – Incidence of digestive diseases.

Physical activity

Several biological mechanisms were considered operative in the association between the increase of physical activity and reduction of cancer risk, and it's

likely that their multiple, interrelated actions are involved; thus, physical activity produces changes in endogenous sexual and metabolic hormone levels and other growth factors; it is also involved in weight control through the concepts of energy balance and hormonal metabolism.

Many illnesses such as cardiovascular disease, high blood pressure, stroke, type 2 diabetes, cancer (the evidence for decreased risk with increased physical activity is classified by the researchers as convincing for breast and colon cancers, probably for prostate cancer, possibly for lung and endometrial cancers and insufficient for cancers at all other sites), chronic anxiety, depression, etc., can be prevented through development of interest in healthy physical activity related habits during childhood and youth. Both schools and families are important in teaching healthy behaviors.

It is not known exactly how much activity children need for a normal development and to prevent illnesses. However, experts agree that regularity rather than intensity gives beneficial results. Here are some USA recommendations for adolescents: "All young people should be physically active every day or nearly every day, as part of playing, sports, games, transportation, work, athletics, recreation, or planned training." It is recommended that young people be active at least three times a week, for at least 20 minutes at a high-intensity level.

In Romanian schools, the number of physical education classes (approximately 45-50 minutes) is settled twice a week; as gym rooms lack the necessary bathrooms equipped with shower cabs, these classes are usually placed at the end of schedule. This makes them be easily avoided with enough indulgence on the teachers' part. In comparison with other academic disciplines, physical education has an inferior status, because of the insufficient awareness of its importance, but this not always without a reason. The instructors are ex-performers of the sport they teach, encouraging mostly skillful subjects, while education recedes into the background. The focus on the competitive aspect of physical activity makes students less gifted or skilled take distance from any physical activity.

This is valid for all pupils, but especially for the overweight who are physically less active. Which is the cause and which is the effect is unclear. But if there is a connection between sedentary life and obesity, then overweight children who are discouraged by their sport results would become even more inactive and fatter. Moreover, fat people in general and fat children in particular (as among children cruelty does not know censure yet and vulnerability to outrages is maximum) are ridiculed and marginalized and the marks come as an institutional confirmation of their integration inability, consolidating a discriminatory treatment and changing them into less sociable persons.

Therefore, researchers suggest a change of direction so that physical education may induce need of general exercise and good feelings about movement, and contribute to an interest in physical activity lasting beyond the school years, the more so as spontaneous, and low-stress physical activity like walking, bicycling, dance, etc. leads to fewer injuries.

Our study clearly indicates a lower total extracurricular physical activity with girls than with boys, and also a different overtime evolution for the two sexes: the interest of both genders decreases during this eight-year school period, but while the decline remains within reasonable limits with boys (65.19% at the age of 11 years and 47.62% at the age of 18 years), it is quite dramatic for girls (from 59.59% at the age of 11 years down to 20.35% at the age of 18 years).

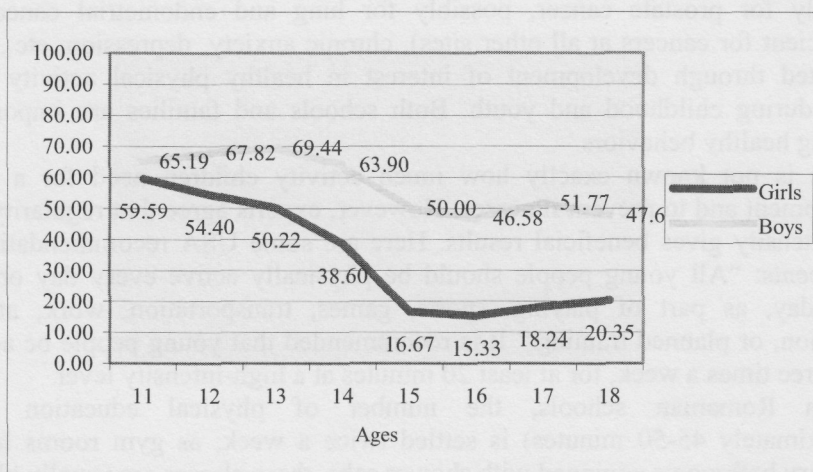


Fig. 20. – Extracurricular physical activity.

Parents should create an active environment by supporting their children's participation in extracurricular physical activity programs and by limiting the time of TV watching and PC use, as these new sedentary activities compete with the amount of time children or teenagers could consecrate to physical exercises. Studies performed in the USA show that children who spend a lot of time watching TV are often overweight and have poor blood lipid values.

Our data indicate that the number of those who spend more than 5 hours a day in front of the PC tends to decrease slightly (2.74% of the girls aged 11 years as against 2.21% of the girls aged 18 years; 9.49% of the boys aged 11 years as against 7.14% of the boys aged 18 years), probably as a result of the increase of scholar tasks, while the number of boys monopolized by the PC is higher than the girls'.

On the contrary, the number of girls and boys spending at least 5 hours a day in front of the TV is relatively close and does not fluctuate too much over time, with a slight advantage of the boys during gymnasium cycle and a reversed situation for girls during high school.

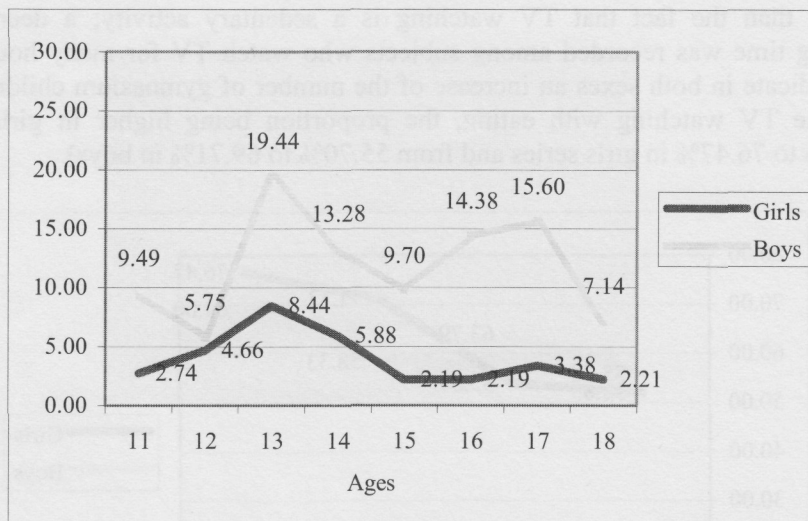


Fig. 21. – Spending at least 5 hours a day in front of the PC.

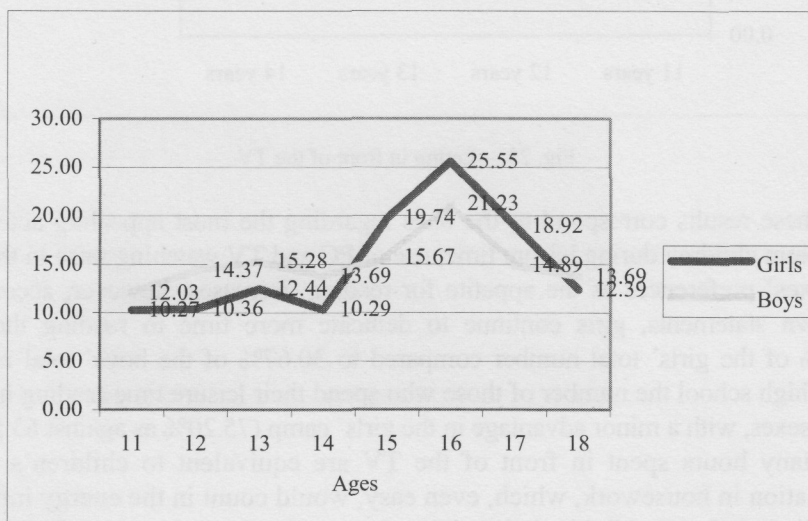


Fig. 22. – Watching TV at least 5 hours a day.

TV watching does not influence only the physical activity level, but also tends to jeopardize the balance between energy intake and expenditure by its association with eating. Other perverse effects should not be overlooked, like the influence of food publicity upon food behavior, an issue that has not been yet in Romania the topic of a rigorous research as the ones conducted in western countries. It seems that eating in front of the TV is even more relevant for the increasing incidence of

obesity than the fact that TV watching is a sedentary activity; a decrease of sleeping time was recorded among subjects who watch TV for many hours. Our data indicate in both sexes an increase of the number of gymnasium children who combine TV watching with eating, the proportion being higher in girls (from 52.05% to 76.47% in girls series and from 55.70% to 69.71% in boys series).

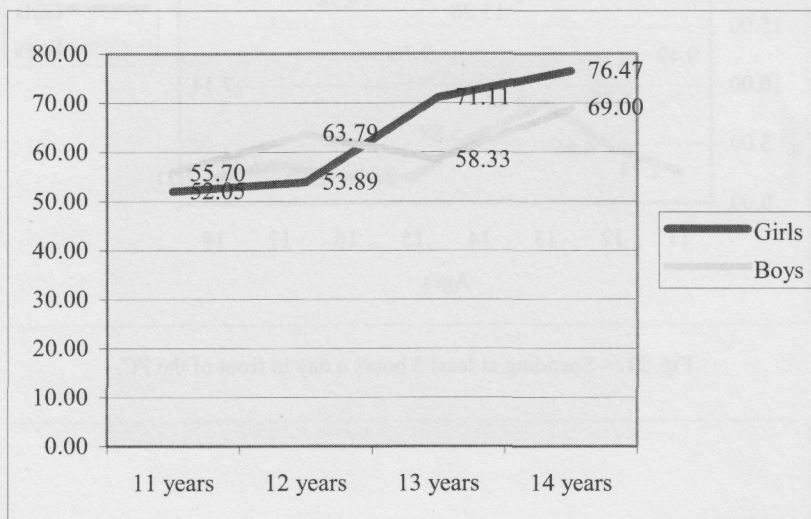


Fig. 23. – Eating in front of the TV.

These results correspond to the ones regarding the most appealing activities to gymnasium children during leisure time; use of PC and TV watching raise in the top of both sexes' preferences as the appetite for reading decreases; however, according to their own statements, girls continue to dedicate more time to reading than boys (44.86% of the girls' total number compared to 30.67% of the boys' total number). During high school the number of those who spend their leisure time reading increases in both sexes, with a minor advantage in the girls' camp (75.20% as against 63.50%).

Many hours spent in front of the TV are equivalent to children's lack of participation in housework, which, even easy, would count in the energy intake and expenditure balance. Highly industrialized countries have been confronted since the '50s to changes in the activity patterns generated by one-stop, out-of-town hypermarkets (that have replaced walking around and carrying merchandise from small local shops), central heating systems and the huge market of domestic appliances (washing machines, dishwashers, spin dryers, vacuum cleaners, kitchen robots, etc.). Addiction to utilities that suppress *any* effort of even the most trivial tasks such as the electric toothbrush was immediately sanctioned. These changes, together with the ones in the eating habits (greater consumption of food away from home and the large increase in the total energy from salty snacks, soft drinks and

pizza) were incriminated in the increase in obesity incidence rates. Our study had only indirectly in view the household physical activity; but an extended research outside the capital and especially in the rural area should necessarily take into consideration this aspect, as we expect that here helping parents is significant within children's "leisure time".

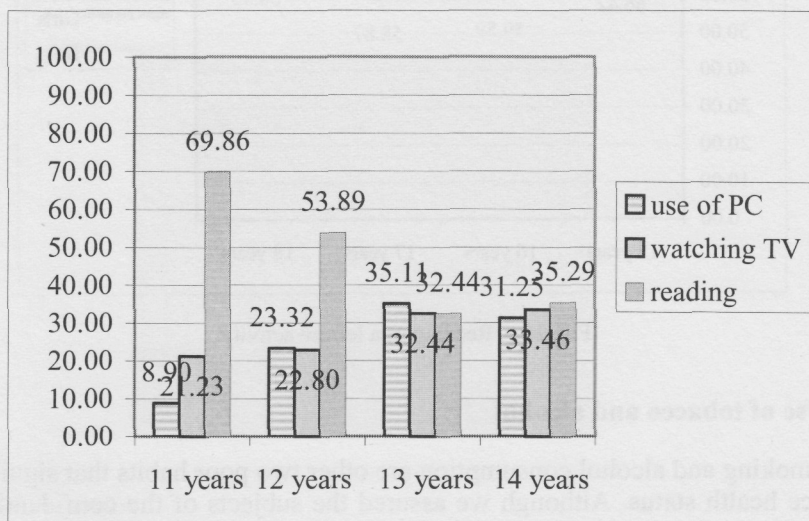


Fig. 24. – Girls' favorite activities.

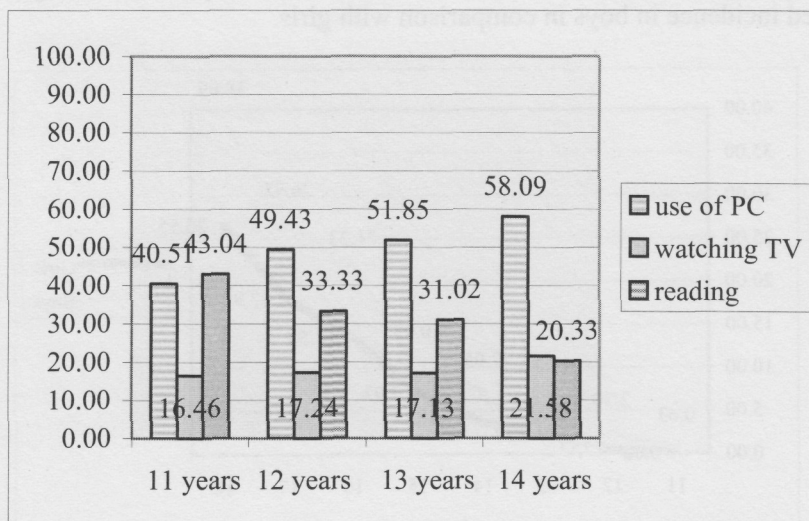


Fig. 25. – Boys' favorite activities.

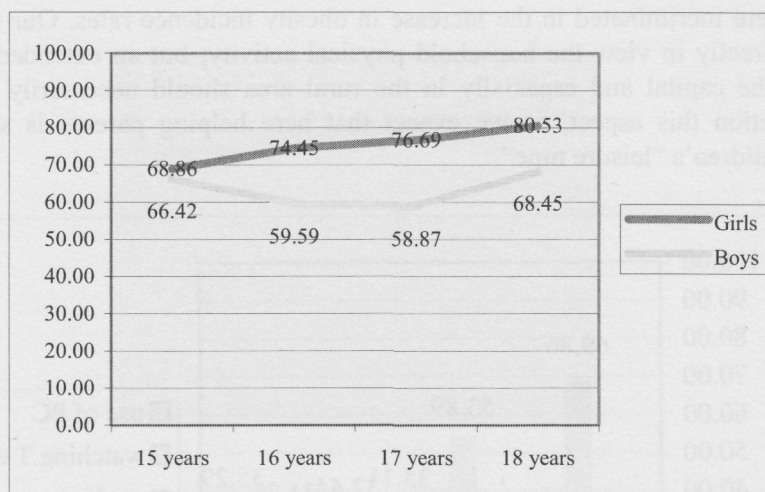


Fig. 26. – Reading as a leisure activity.

Use of tobacco and alcohol

Smoking and alcohol consumption are other two poor habits that significantly influence health status. Although we assured the subjects of the confidentiality of the data collected on the basis of the questionnaire, we have serious doubts regarding the sincerity of their answers. Even so, the results highlighted an increasing tendency of smoking and alcohol consumption with age and an increased incidence in boys in comparison with girls.

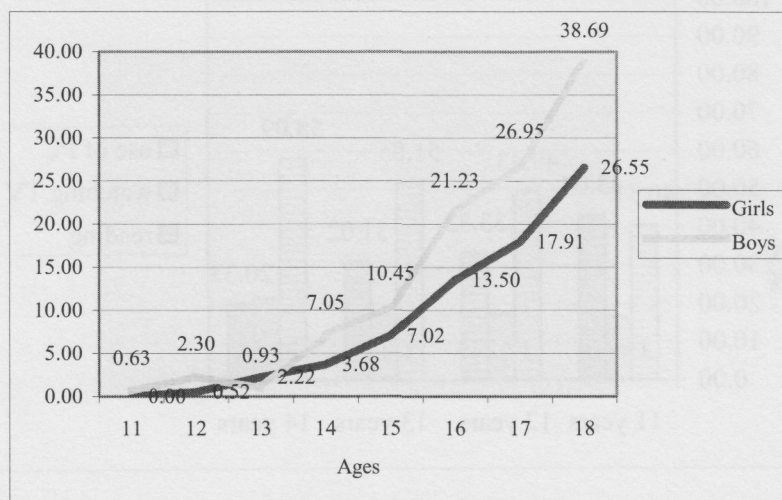


Fig. 27. – Use of tobacco.

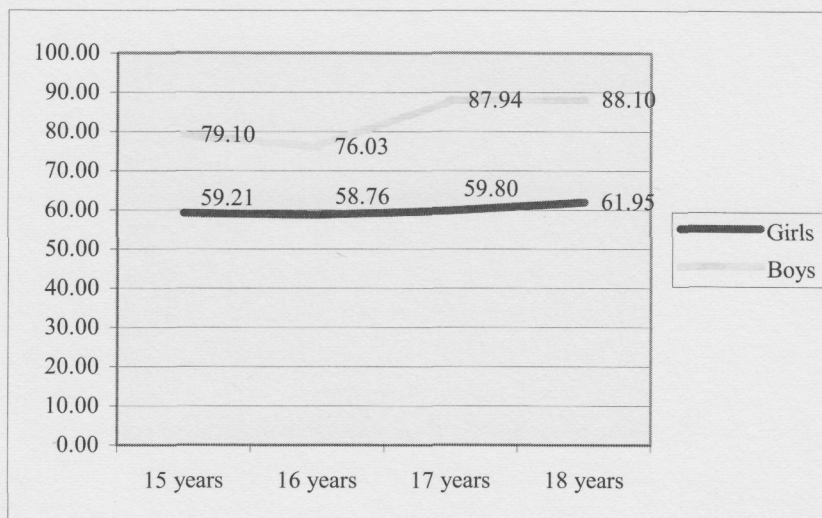


Fig. 28. – Use of alcohol.

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MOLECULAR PALEOGENETIC RESEARCH (NUCLEAR DNA) ON SOME OLD HUMAN POPULATIONS IN ROMANIA DATING FROM THE BRONZE AND IRON AGE

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A KROLL¹ A RODEWALD¹

We performed this paleogenetic study on skeletal samples of 50 individuals from old human populations dating from the Bronze and Iron Age, found in Romania. In order to show the degree of their genetic kinship with nowadays-Romanian population and other modern European populations, we analyzed nuclear DNA (vWA31A and DYS393 Microsatellites) polymorphisms. The genetic sex of the old individuals was identified by amplifying a sequence of the Amelogenin gene. Our results were compared with similar genetic data of some European populations. Our data reflected an evident genetic similarity between old human populations who lived in Romania in the Bronze and Iron Ages and other modern populations from South-East Europe.

INTRODUCTION

The ancient DNA (aDNA) research area appeared in the '80, and it has proved to be a valuable instrument for studying the evolution at molecular level over an unlimited time. For the human species, the study of ancient DNA extracted from fossils has led to a better understanding of human beings and the evolution of human genome, as well as the spread of human populations throughout the Earth (Paabo 1989; Cattaneo 1999; J. M. Butler 2001; Gotherstrom 2002).

Any aDNA study depends essentially on the status of DNA preservation in fossils, aDNA extraction being the crucial step of this kind of research. The DNA molecules are degraded after death by many factors, endogenous (different enzymes) or environmental factors (radiation, water, bacteria, etc.), some of them speeding up the DNA damage process. It has been assumed that in physiological concentrations of salt, neutral pH and 15°C, all DNA molecules from fossils are completely degraded in approximately 100 000 years (Hummel 2003).

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The genetic material of all living organisms is the DNA, consisting of macromolecules with double helical structure, built up from 4 types of nucleotides, each of them containing a sugar, a phosphate group (making up the DNA backbone) and a nucleobase. The 4 nucleobases in the DNA structure are: Adenine (A), Guanine (G), Cytosine (C) and Thymine (T). The genetic code, universal in the whole life world, is made by the succession of these 4 nucleotides. The length of a double stranded DNA molecule is usually expressed in complementary base pairs (bp). All DNA molecules of a cell constitute the genome, localized in the nucleus and mitochondria.

The nuclear genome is organized into chromosomes, built from DNA and protecting proteins. In sexual cells there is a **haploid** nuclear genome, consisting of a complete set of genes of 23 chromosomes. In each human body cell there is a **diploid** nuclear genome (Figures 1 and 2), consisting of 2 haploid sets of chromosomes inherited from the two parents (46 chromosomes: 22 pairs of somatic chromosomes and 1 pair of sex determining chromosomes, X and Y). The sex chromosomes are XX in females and XY in males. The diploid genome of somatic cells results by fusion of the sexual cells at the conception time, each individual having a particular set of chromosomes.

The genes are localized on the chromosomes. Each individual possesses two variants called **alleles** of each gene (one inherited from the mother and one from the father) at a particular genetic locus on homologous chromosomes. The two alleles can be identical or not. The characterization of the alleles present at a genetic locus is called **genotype** (Butler 2001).

Many external or internal factors (such as radiation, chemical compounds, errors in DNA replications, etc.) can change the nucleotide succession in DNA sequence, a **DNA mutation** occurring.

Many mutations occurring in the uncoding part of DNA do not affect the organism fitness and they accumulated during evolution, resulting many variants for the same DNA region, called **DNA polymorphisms**. Thus, a great diversity of DNA polymorphisms occurred in uncoding DNA in a population with many individuals, **STR (short tandem repeats)** are relevant in our study. These types of DNA markers are also named microsatellites and consist of basic 2-5 bp sequence repeated several times. Many of those DNA polymorphisms are valuable tools in forensic and population studies (J. M. Butler 2001; Hummel 2003).

The aim of our study was to perform a complex draw about the genetic structure of some old human populations who lived in Romania in The Bronze and Iron Ages and to reveal their genetic relationship with modern human populations, especially with nowadays Romanian population.

HISTORICAL CONTEXT

The cultural features that define the Bronze Age in the evolution of the prehistoric communities distinguish it clearly from the previous period, the

Neolithic. At the beginning the settlements are constituted of small human groups, living in temporary sites of small surface. Later, there is a variety of settlements, different from one culture to another, in the plains up to the hilly areas. In the Monteoru culture, there were excavated hilltop settlements (*Cetățui*), easy to defend, sometimes having constructions with a presumed defensive significance. There are some cases (Sărata Monteoru, Mănăstioara-Fitionești), where terraces were built, and on the hilltop, some buildings with a presumed religious role were in use. Due to the lack of discoveries and the state of publication, we know very little about the dwellings, although there seems to be a predominance of rectangular dwellings, pit-dwellings being rarely found. Concerning the economy of the Bronze Age populations there seems to be a balance between agriculture and stock farming, being usually adapted to the different geographic regions (Comșa 1994).

Trade development is another feature of this period, mainly through the occurrence of the four wheel chariot and the dissemination of the bronze metallurgy. The settlements disposal, along the river terraces, suggests the existence of trade routes along the rivers valleys, although the Carpathians were never a barrier, the exchange being intensive between inner and outer Carpathians throughout Bronze and Iron Age. As an example we can take the numerous bronze objects and ceramics materials belonging to the Wietenberg, Tei or Mnogovalikovaja culture, which were found in Monteoru culture site, attesting that the Bronze Age communities were engaged in long or short distance trading. The high development of trading in the Bronze Age can be also put in relation with the exogamy and the development of gift exchanges between the leaders of different communities (Motzoi-Chicideanu 1995).

But the development of exchanges, economy and social stratification have had in background the generalization of bronze as a raw material for the production of weapons, implements, adornments, parts of harness, etc., throughout the Bronze Age and mainly in the early Hallstatt.

The usual burial rite is inhumation, incineration being a secondary funeral rite, which became dominant in the late Bronze Age. There are some cultural areas (including the Monteoru culture) where inhumation and incineration were used simultaneously. Necropolis were usually near the settlements, age, sex, and the social status of the individuals being highlighted by the funeral lay-out and the quality and quantity of the inventory.

Hallstatt period, mainly in its early and middle period, where the Babadag and Basarabi culture were framed, has a resembling evolution with the late Bronze Age. However, the economy seems to be more attached to stock breeding, that is why the settlements have small deposits, and for the first time we can find large citadels, for the refuge of people and herds. Concerning the funeral practice, incineration becomes the main rite, inhumation being used rarely, an exception being the barrow necropolises belonging to the Basarabi culture from Basarabi, Babadag and Gogoșu (Vulpe 2001).

The usual funeral rite of the Babadag culture has not been archaeologically known until now, being found only skeletons buried in pits in the settlements, which are not the usual way of disembarassing the deaths (Ailincăi 2005–2006).

MATERIAL AND METHODS

Human fossil bones and teeth of 50 old individuals, dating from the Bronze and Iron Age, represented the biological material of our study. We studied the skeletal remains of 22 individuals, from the early to late Romanian Bronze Age 3500–1200 B.C., belonging to several cultures, found in some archaeological sites (Figure 3), namely:

- Costișa (Neamț County), possibly Foltești Culture;
- Năeni-*Zănoaga* (Buzău County) and Căndești (Vrancea County), Monteoru Culture;
- Balintestii – *Cioinagi* (Galați County) Noua Culture;
- Smeeni (Buzău County) Katakombnaja Culture;
- Zimnicea (Teleorman County), Zimnicea Culture;
- Sultana-*Malu Roșu* (Călărași County), Tei Culture;

The fossils of the 28 individuals from the the early and middle Iron Age 1200–650 B.C. (Vulpe 1996; Vulpe 2001), belonged to the Hallstatt Age (the Babadag and Basarabi Cultures), and they were found in settlements in different archaeological sites in Romania, as follows (Figure 3):

- Niculițel-Cornet, Enisala-Palanca, Babadag, Jijila, Jurilovca (Tulcea County), Satu-Nou (Constanța County), Babadag Culture;
- Hunedoara-*Grădina Castelului* (Hunedoara County), Bujoru (Teleorman County), Basarabi and Desa (Dolj County), Basarabi Culture.

The skeletal remains showed different states of degradation, depending on the preservation conditions before (in the archaeological site) and after (in storage rooms) they were dug up.

All laboratory experiments were performed in a dedicated paleogenetics laboratory of the Institute of Human Biology-University of Hamburg, with three different rooms for ancient DNA (aDNA) extraction (constantly irradiated with UV lamps), PCR amplification and cleaning-up the PCR products. Sterile protective equipment, instruments and reagents were used in order to prevent any contamination with modern DNA. The reagents were commercially acquired when possible; otherwise, they were autoclaved and UV-treated.

Skeletal remains pre-treatment

In order to remove any previous DNA contamination, the teeth and bones were treated in succession with 5M HCl, sterile distilled water, and UV radiation (20–30 min. on each side, for drying).

Then, each skeletal remain was crushed in a metal box with a heavy metal piece (both sterilized at 200°C for at least 2 hours) and the powder was preserved at -20°C.

a DNA extraction

For aDNA extraction we used three methods, as follows:

- the phenol-based DNA extraction method as described by Hummel (Hummel, 2003) and modified (Cardos. 2004);
- the guanidine thiocyanate and silica-based method described by Hoss and Pääbo (Hoss, 1993), and modified (Cardos. 2004);
- the Invisorb Forensic Kit (Invitex)-based DNA extraction method according with the manufacturer recommendations and modified (Cardos. 2004).

To monitor any contamination, one extraction blank (without biological sample) was processed during each DNA extraction.

The PCR amplification

Polymerase chain reaction (PCR) is an *in vitro* DNA amplification reaction, performed by a thermostable enzyme DNA-polymerase. This enzymatic reaction allows amplifying in an exponential manner and studying even one DNA molecule persisted in a fossil. A typical PCR consists in 30-40 cycles based on 3 different temperature steps for DNA template denaturizing (at 94°C – 95°C), oligonucleotide primers annealing (usually between 55°C – 70°C), and elongation step (usually at 72°C). Theoretically, at the end of each cycle, the DNA amount is doubled. Practically, the reaction efficiency is under 100 %, especially in the aDNA field, where both organic and inorganic contaminants from aDNA extracts and DNA degradation are common and can inhibit partially or even completely the DNA polymerase activity. To compensate the low efficiency of PCR reaction, in aDNA studies the number of PCR amplification cycles is usually raised over 40 cycles, depending on the number of DNA template molecules and purity of DNA extract (Hummel 2003).

In our study we amplified by PCR three nuclear DNA markers, namely a short DNA sequence from the Amelogenin gene on the sex chromosomes, HumVWA31 marker on the chromosome 12, and DYS393 marker on the chromosome Y. (The primer sequences, the reaction mixture and the PCR profiles available on request).

The Amelogenin gene is localized on the sex chromosomes X (in the Xp22.31-p22.1 region) and Y (in the Yp11.2), and it is coding for a protein of the dental enamel (Figure 4). This gene is frequently used in forensic genetics for sex-typing assay. We amplified by PCR a short sequence from the first intron of this gene with a specific primer pair (Hummel, 2003) which amplified a 106 bp DNA sequence from the X chromosome and a 112 bp DNA sequence from the Y chromosome. In case of male individuals, two PCR products (two DNA bands on an electrophoresis gel) were obtained (corresponding to both sequences mentioned above) and in case of females only the one from the X chromosome.

The DYS393 STR (short tandem repeats) marker is localized in Yp11 region of the Y chromosome and it is frequently used in population and forensic studies (Figure 4).

The HumVWA31A microsatellite is a tetranucleotid STR marker, localized on the chromosome 12, in the intron 40 of the von Willebrand Factor gene, in the 12p12 region (Figure 5). The primer set used in our study amplified a 134–170 bp-DNA sequence (depending on the amplified allele). (The primer sequences available on request).

In order to detect the presence of any inhibitors in our aDNA extracts, we amplified by PCRs the control DNA (DNA K₅₆₂) in the presence of variable amounts of aDNA extracts. For monitoring any contamination event, one to three negative controls (without DNA extract) were set for each PCR.

All PCR reactions were performed at least in duplicate, in a *Perkin Elmer GeneAmp PCR System 9600 Thermal Cycler* and an *Eppendorf Mastercycler Gradient Cycler*.

After demonstrating the presence of PCR products on agarose gels 2 % by UV visualisation (after staining with Etidium Bromide), the amplified DNA sequences were separated by electrophoresis on non-denaturing 8% polyacrylamide gels, Ag-stained (Butler. 2001). The DNA alleles were identified against male and female DNA positive control (in the case of the Amelogenine gene) and against a HumVWA31A DNA allelic ladder.

The DNA sequencing, alignment and analysis

The amplified DYS 393 alleles were sequenced at MWG (Germany) by the Sanger method (Sanger. 1977), after cleaning them with the *MBS spin PCRapace Kit (50)* (Invitek). The DNA sequences were aligned in Bioedit Program (Version 7.0.5.3.) (Hall. 1999).

The allele frequencies of the vWA31A microsatellite in the old populations were compared with similar data of the modern Romanian population and other 5 modern European populations.

Phylogenetic and molecular evolutionary analyses were conducted using Bioedit (Version 7.0.5.3.) and Philip (Version 3.6) Software (Felsenstein, 1989).

RESULTS AND DISCUSSION

We obtained aDNA from human skeletal remains by all three DNA extraction methods used. Most of the fossil teeth were much better preserved than many human old bones probably due to the enamel layer, which protect teeth against damaging induced by diagenetic factors.

We could find out the genetic sex of 28 old individuals, 16 females and 12 males (Figure 6).

Our result confirmed the anthropological data on sex determining of 27 old individuals by analyzing their skeletal remains. For one old male individual, the 106 bp DNA sequence from the X chromosome was only amplified. For the 112 bp

DNA sequence from the Y chromosome probably the allelic dropout phenomenon occurred, in which case one allele could be in very small amount and the detection methods cannot detect it. The small amount of the allele is generally due to an extended damage of the aDNA in that chromosomal region.

As concerns the DYS393 DNA marker, we could obtain DNA sequences for 5 old individuals. We could identify the DYS393 allele 11 for 1 individual, the allele 13 for another 1 old individual (Figure 7), and the allele 14 for 3 individuals. These few DNA sequences obtained in this case suggest the possibility that the chromosome region where the DYS393 marker is localized is partially or totally degraded in many skeletal fossils from our study.

As concerns the vWA31A microsatellite, we obtained DNA sequences for 30 old individuals, therein 9 individuals from the Bronze Age and 21 individuals from the Iron Age (Figure 8).

The relative allele frequencies were calculated for the Bronze and Iron Age populations, independently and taken together (Table 1).

From the 12 alleles of the HumVWA31A DNA marker (the alleles 13-22) known in human populations until now, only 6 alleles (the alleles 14-19) were found in the old individuals analyzed here. The narrow allele variation obtained here suggests that the old human populations from Romania analyzed here might have lived in small groups reproductively partially isolated. The natural relief (mountains, rivers), but also their local customs, traditions and beliefs might be reasons for those small old human groups to partially limit their mating relationships with other similar groups, but also the small number of the old population samples analyzed can be the cause of the small genetic variation.

Comparing the allele frequencies of the VWA31A DNA marker in the old human populations from the Bronze and Iron Ages between each other and with the similar data in a modern Romanian population sample by Chi-square we found no very significant differences ($p \geq 0.1$).

We also compared the allelic frequencies of this DNA marker in the old populations with frequencies in other European modern populations. The genetic distances calculated according to the Cavalli-Sforza and Nei formula and the phylogenetic trees built by Neighbor-Joining Tree Method showed the genetic kinship of the old populations with the 6 modern European populations (Figure 9). Both old human population groups from Bronze and Iron Age grouped much closer together, in all phylogenetic trees built based on both genetic distance methods used.

The allele frequencies of the VWA31A microsatellite showed a greater genetic kinship between the old Thracian populations with the modern Slovakian and Italian population. A degree of genetic kinship is showed with other European populations like Croatia as well as Romania. We should note that the old individuals from the Bronze and Iron Ages studied here lived in Romania before the old Greek populations came to the Romanian Black Sea coast. The Romanian modern population is closer related to the modern Greek population than some old human populations who lived in Romania probably because of the subsequent admixture between populations in the past, during or/and after Iron Age.

CONCLUSION AND PROSPECTS

We consider that our results reflect a genetic similarity between the old individuals analyzed in our study and the modern European populations. Moreover, we suppose that those old populations would have been able to contribute to the foundation of the Romanian modern genetic pool. More DNA markers need to be analyzed follow-up to perform a more complex objective statistical analysis.

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Figure 1. Schematic representation of the human karyotype (22 somatic chromosomes and 2 sex chromosomes, X and Y in male, and XX in female). Each chromosome has a specific pattern of light and dark bands after GTG banding (Giemsa staining after trypsin treatment).

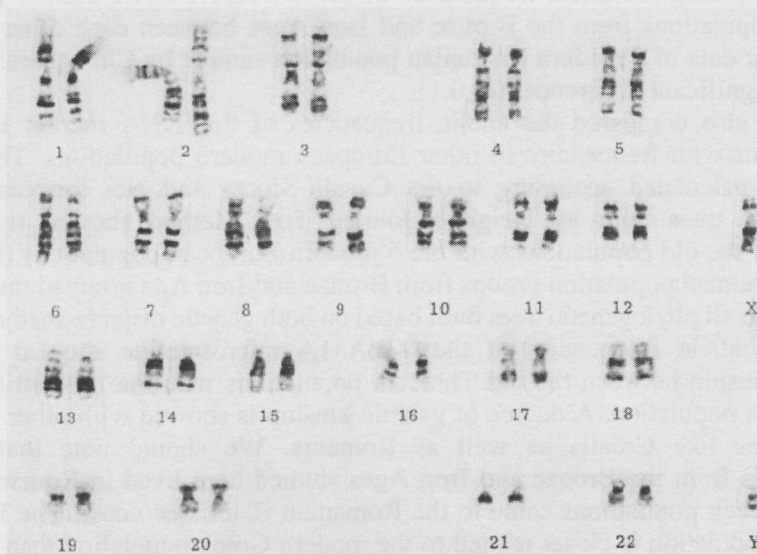


Figure 2. Normal human male karyotype from leucocyte cell.

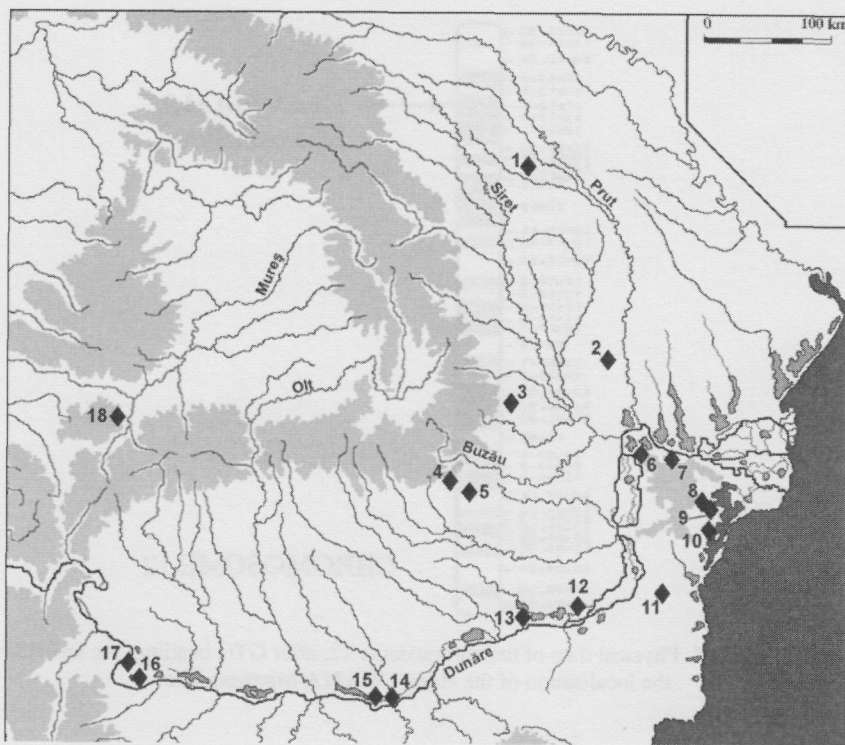


Fig. 3. The archaeological sites from Romania, mentioned in the text: 1. Costișa; 2. Balintești – Cionagi; 3. Căndești; 4. Năeni; 5. Smeeni; 6. Jijila; 7. Niculițel – Cornet; 8. Babadag; 9. Enisala – Palanca; 10. Jurilovca; 11. Satu Nou; 12. Coslogreni; 13. Sultana – *Malu Roșu*; 14. Bujou; 15. Zimnicea; 16. Desa; 17. Basarabi; 18. Hunedoara – *Grădina Castelului*.

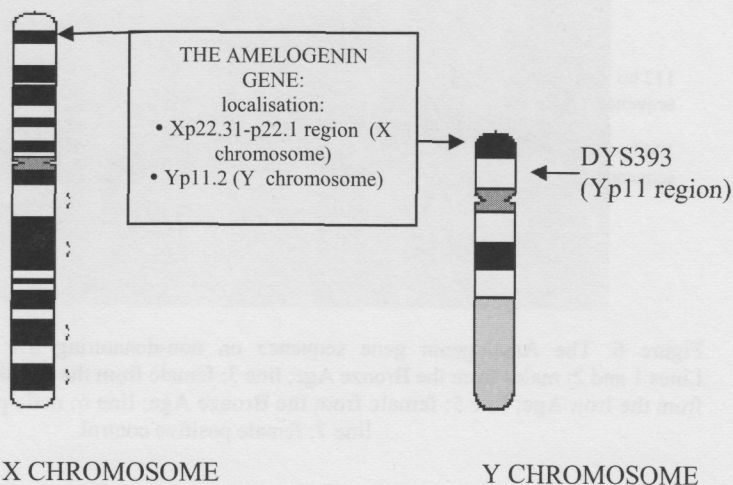


Figure 4. Physical map of sex chromosomes X and Y, with their particular patterns of dark and light bands obtained by GTG banding. Localization of the Amelogenin gene on the X and Y chromosomes and of the DYS393 STR marker on the Y chromosome.

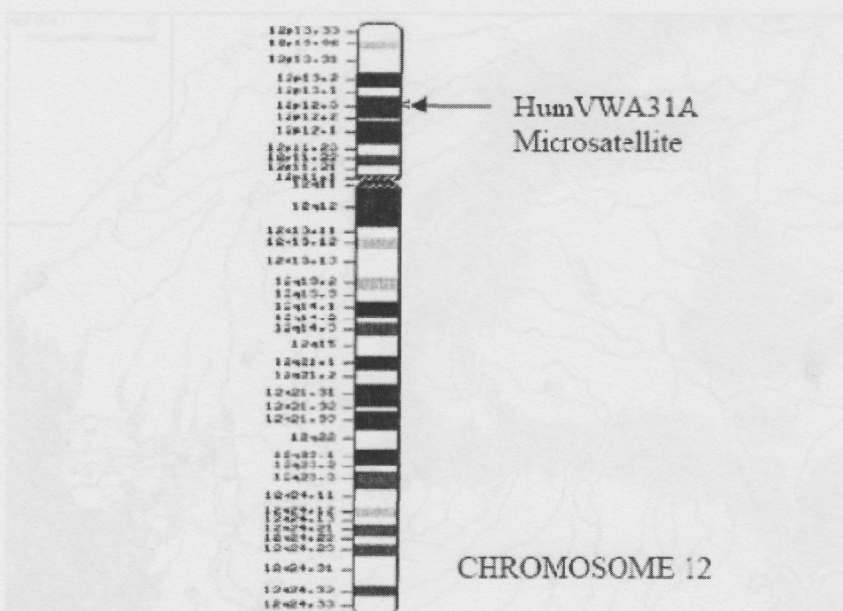


Figure 5. Physical map of the chromosome 12, after GTG banding; the arrow shows the localisation of the Hum VWA31A Microsatellite.

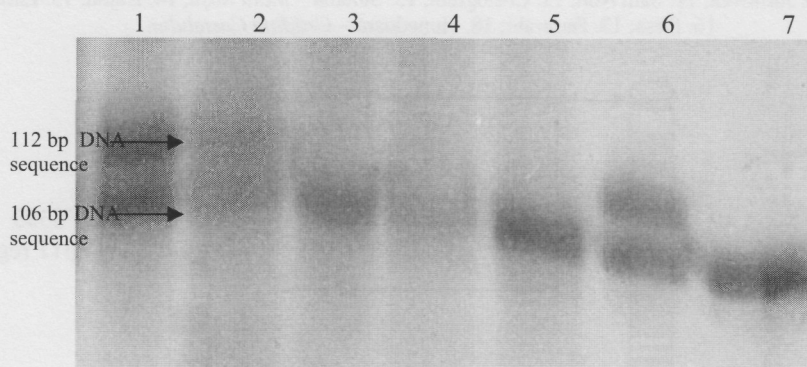


Figure 6. The Amelogenin gene sequence on non-denaturing 8% polyacrylamide gel. Lines 1 and 2: males from the Bronze Age; line 3: female from the Bronze Age; line 4: female from the Iron Age; line 5: female from the Bronze Age; line 6: male positive control; line 7: female positive control.

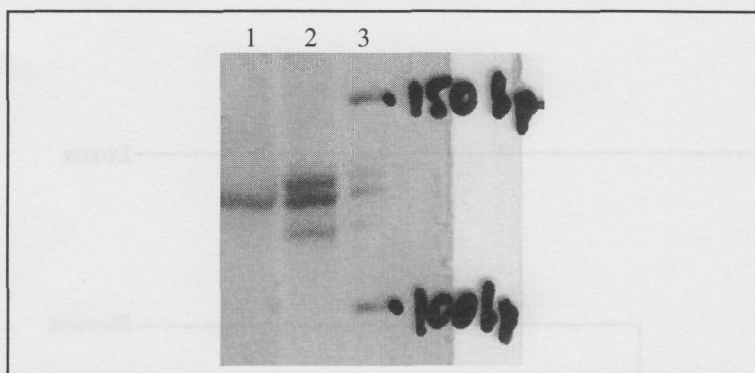


Figure 7. DYS393 marker sequences on non-denaturing polyacrylamide gel 8%. Line 1: old individual from Iron Age; line 2: DYS393 allele leader; line 3: the 100bp DNA marker.

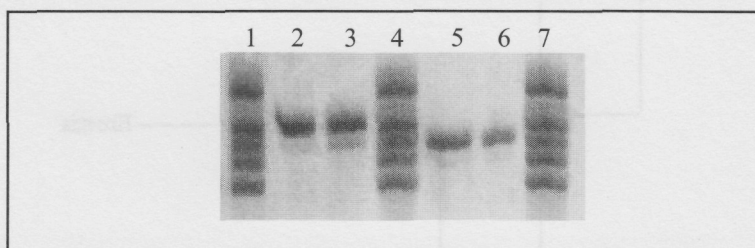


Figure 8. HumVWA31A Microsatellite on non-denaturing polyacrylamide gel 8%. Line 1, 4 and 7: DNA allelic leader (the alleles 14–20 from the bottom); line 2 and 3: alleles 16 and 17 of the old individual 5 IA, obtained by two different PCRs; lines 5 and 6: allele 16 of the old individual 26 IA, from two different PCRs. IA= Iron Age.

Table 1

The allele frequencies of the VWEA31A DNA Marker in old human populations from Bronze and Iron Age

VWA31A allele	Old populations from Bronze Age	Old populations from Iron Age	Old populations from Bronze and Iron Age together
14	0.1667	0.0952	0.1167
15	0.0556	0.1190	0.1000
16	0.2223	0.3809	0.3333
17	0	0.1428	0.1000
18	0.2777	0.2142	0.2333
19	0.2777	0.0476	0.1167

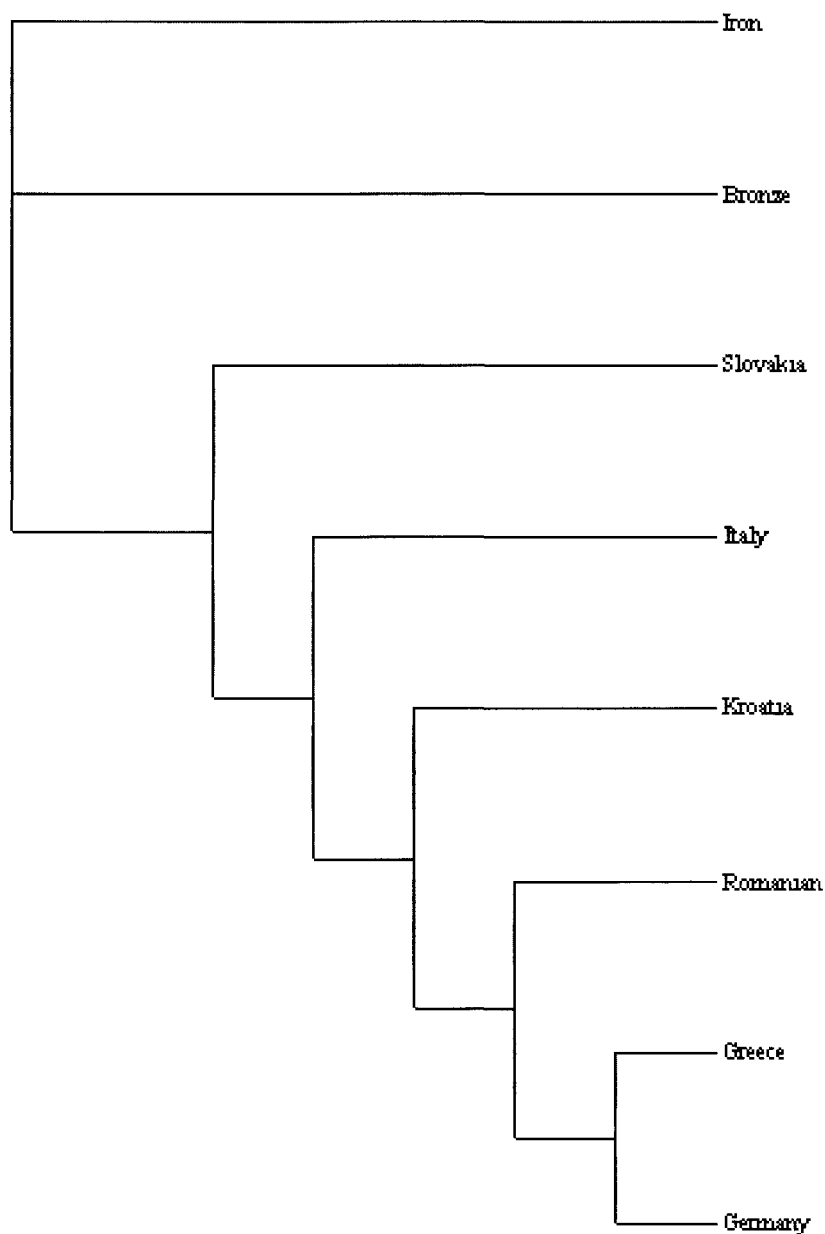


Figure 9 The phylogenetic tree built by Neighbour-joining tree method based on Cavalli-Sforza genetic distances showing the genetic relationship of the old populations from Bronze and Iron Age with some European modern human population

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ASPECTS BIO-MÉDICAUX ET SOCIAUX CONCERNANT LES ENFANTS SOURDS-MUETS D'UNE ÉCOLE SPÉCIALE DE BUCAREST

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LĂCRĂMIOARA MUREȘAN, M RADU, N LEASEVICI

Bio-medical and social aspects concerning deaf-and-dumb children from a special school from Bucharest. We studied deaf-and-dumb children from elementary school (I-VIII degrees) from No 2 Special School in Bucharest concerning their physical development, external ear morpho-physiognomy and dermatoglyphies, in the period 2002-2005. From the medical records we estimate in this paperwork the deafness forms and probable causes, the family history concerning this deficiency and some aspects about the family and the environment of these children.

In most part, the children are affected by a bilateral deafness and the principal cause of this illness is the heredity. Many of them have also some other deficiencies, probably associated with the deafness (intellectual retard, behavioral disorders, etc.). 80% of the studied families have 1-3 children and the parents, in general, have elementary studies. The subjects are coming from an urban environment, (60% urban, 40% rural), many of them being from Bucharest and neighboring districts.

Pendant les années 2002-2005 nous avons étudié les enfants sourds-muets de l'école spéciale n° 2* de Bucarest (I^{re} - VIII^e classes) âgés de 7 à 16 ans. Nos travaux antérieurs font des références au développement céphalo-facial, corporel et aux quelques aspects concernant la morphophysionomie de l'oreille externe des ces enfants (1-3, 5).

Le travail présent vient d'apprécier selon les dates médicales (plus précisément les fiches médicales) les formes de surdité des enfants, la présence de la surdité dans leurs familles, les causes probables de la surdité et quelques aspects concernant la famille et le milieu de provenance de ces enfants.

Nous avons évalué 162 fiches médicales mais les résultats se basent sur les dates plus ou moins complètes.

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1. LES FORMES ET LES CAUSES PROBABLES DE LA SURDITÉ CHEZ LES ENFANTS ÉTUDIÉS (Tableaux 1–3)

La plupart des enfants a une surdité bilatérale (98%) avec une prédominance de celle sévère et moyenne (tableau 1). Dans les fiches médicales prédominent les motivations congénitales (25,25%) et héréditaires (44,44%) (nous avons apprécié la cause héréditaire quand existait dans la famille de l'enfant au –moins encore un membre affecté), mais sont aussi mentionnées les maladies contractées (rubéole, méningite, oreillons, otite) pendant la première enfance, les antibiotiques prélevés pendant la période de nourrisson (pénicilline, streptomycine, gentamycine etc.) (tableau 2).

Tableau 1

Les formes de la surdité chez les enfants étudiés (N=110)

Bilatérale sévère		Bilatérale moyenne		Bilatérale légère		Unilatérale	
n	%	n	%	n	%	n	%
60	54,55	46	41,82	3	2,73	1	0,91

Tableau 2

Les causes probables de la surdité (mentionnées dans les fiches médicales) (N=99)

Congénital		Héréditaire		Maladies pendant la première enfance		Antibiotiques pendant la période de nourrisson		Accidents de la mère enceinte		Accidents de l'enfant pendant la période de nourrisson		Parent alcoolique	
n	%	n	%	n	%	n	%	n	%	n	%	n	%
25	25,25	44	44,44	11	11,11	13	13,13	3	3,03	1	1,01	2	2,02

Les uns d'entre ces enfants sourds-muets ont aussi d'autres déficiences, possible associées avec la surdité: sous-développement intellectuel, immaturité psycho-affective, troubles du comportement, syndrome Marfan, syndrome hypercinétique, parésie faciale etc.

Avec une réserve concernant les fiches, on voit que seulement en 37,66% de cas la surdité est présente dans les familles des ces enfants, spécialement des autres frères affectés (20,13%) ou tous les deux parents affectés (12,34%) (tableau 3).

Tableau 3

La présence de la surdité dans les familles des enfants étudiés (N=154)

Tous les deux parents affectés		Le père affecté		La mère affectée		Grands-parents affectés		Frères affectés		Parenté normale	
n	%	n	%	n	%	n	%	n	%	n	%
19	12,34	3	1,95	3	1,95	2	1,30	31	20,13	96	62,34

2. ASPECTS CONCERNANT LES FAMILLES DES ENFANTS ÉTUDIÉS (Tableaux 4–7)

L'amplitude de variation de la dimension de la famille nucléaire est comprise entre 1 et 6 enfants par famille des familles. Les familles ont fréquemment 1–3 enfants ($\approx 80\%$). Les couples ayant plus de trois enfants représentent un poids d'approximativement 20%. On souligne toutefois les familles avec 5-6 enfants ($\approx 8\%$) (tableau 4). Nous avons trouvé deux familles avec les parents normaux et 5–6 enfants affectés.

Tableau 4

La dimension des familles et le nombre des enfants affectés (N=154)

Nº enf.	Nº familles		Dont avec des enfants affectés							
			Un enfant affecté		Deux enfants affectés		Quatre enfants affectés		Cinq enfants affectés	
	n	%	n	%	n	%	n	%	n	%
1	39	25,32	39	100,00	–	–	–	–	–	–
2	55	35,71	40	72,73	15	27,27	–	–	–	–
3	29	18,83	22	75,86	7	24,14	–	–	–	–
4	19	12,34	17	89,47	2	10,53	–	–	–	–
5	6	3,9	5	83,33	1	16,67	–	–	–	–
6	6	3,9	3	50,00	1	16,67	1	16,67	1	16,67
Nº fam.	154		126	81,82	26	16,88	1	0,65	1	0,65

Les fiches mentionnent seulement 25 familles avec des parents affectés. Dans la plupart des familles sont affectés tous les deux parents (76%). En ce qui concerne le sexe de l'enfant affecté existe une faible prédominance des filles.

Les familles avec des parents affectés ont un ou deux enfants affectés (tableau 5).

Tableau 5

Le nombre et le sexe des enfants sourds-muets dans les familles avec des parents affectés (N=25)

Parents affectés	Nº familles		Nº enfants affectés selon le sexe		Nº familles avec	
	n	%	Garçons	Filles	Un enfant affecté	Deux enfants affectés
Tous les deux	19	76,00	11	15	11	8
Père	3	12,00	1	3	2	1
Mère	3	12,00	2	3	1	2
Total	25		14	21	14	11

La plupart des familles des enfants sourds-muets est de type ordinaire ($\approx 90\%$) mais on trouve aussi des familles en consensus, des familles monopaternelles et des familles adoptives (tableau 6).

Tableau 6

La typologie familiale des enfants sourds-muets (N=158)

Famille ordinaire		Famille en consensus		Famille monopaternelle		Famille adoptive	
n	%	n	%	n	%	n	%
140	88,61	11	6,96	3	1,90	4	2,53

Tableau 7

Le milieu de provenance des enfants (N=162)

Rural		Urbain	
n	%	n	%
64	39,51	98	60,49

Les parents de ces enfants ont en général des études élémentaires et les plus sont ouvriers ou agriculteurs

Le milieu de provenance des enfants affectés est spécialement d'origine urbain ($> 60\%$), mais le poids d'origine rural est aussi même important ($\approx 40\%$). C'est Bucarest qui a la prédominance (34%), suivie par les départements voisins, Dâmbovița, Prahova, Giurgiu, Teleorman, Ilfov. On trouve aussi quelques enfants qui proviennent de L'Olténie, Dobrogea, Moldova et Transylvanie

CONCLUSIONS

Les enfants sourds-muets étudiés par nous à l'école spéciale n° 2 de Bucarest sont affectés dans la plupart d'une surdité bilatérale et la cause probable de l'affection avec prédominance est celle héréditaire. La dimension de la famille nucléaire est, en moyenne, en concordance avec les dates nationales, mais nous avons trouvé quelques familles avec 5–6 enfants affectés avec des parents normaux. Il est possible que ces familles aient ou eussent eu des membres affectés en l'ascendance.

L'échantillon et les fiches médicales et aussi l'école bucarestoise, nous ne permettent pas d'apprécier clairement le sexe et le milieu lesquels ont la prédominance dans l'affection.

Nous revenons pour souligner encore une fois les conditions favorables de vie et d'enseignement assurées par cette école spéciale pour les enfants sourds-muets.

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ON THE GROWTH OF THE MAIN CEPHALO-FACIAL SIZES IN 7–10 YEARS OLD CHILDREN FROM THE RURAL AND URBAN AREA OF IAȘI AND THEIR TIME-INDUCED MODIFICATIONS

MARIA ȘTIRBU, GEORGETA MIU, MARIA ISTRATE

The study analyzes the growth of the main cephalo-facial sizes on two groups of 7–10 years old children coming from two different ecological media
The results obtained are compared with those recorded by Maria Cristescu and collab. 1976, on two groups of subjects of the same age and origin – which permitted to evidence some modifications, as induced by time

INTRODUCTION

The paper resumes and completes the study performed on 7–10 years old children from urban and rural milieu of the Iași County, with a new aspect, regarding the growth and modification of the cephalo-facial segment, as a function of sex, age and milieu, on the one hand, and, as a function of time, on the other.

MATERIALS AND METHOD

The material considered for the study is represented by 1,649 children with ages between 7–10 years, structured into two groups: 850 (421 boys and 429 girls) from the city of Iași and, respectively, 799 (392 boys and 407 girls) from the rural milieu of the Iași county. The children were investigated anthropometrically by the transversal method, in the years 2001 – the urban group and, respectively 2002 – the rural one.

The paper analyzes the length and width of the brain-pan and their ratio, expressed by the cephalic index, as well as the height and length of the face and of their ratio, expressed by the total facial index.

At the level of each group, we calculated – on classes of age and sex – the average values and the standard deviation for both the absolute and relative sizes.

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The results obtained are interpreted comparatively with those recorded some 30 years ago, and this permits the identification of the time-induced modifications.

RESULTS

The cephalic segment increases in both length and width. The increase growth over the four years under consideration (7–10) is slightly higher in girls comparatively with boys, and also higher in the urban than in the rural series – with the exception of the brain-pan's length in girls (Tables 1–4 series: 2002). A detailed analysis evidences that, in the case of the boys of both the urban and the rural series, the growth increase from 7 to 10 years is slightly higher for the length of the brain-pan comparatively with its width (*i.e.*, 2.64 *versus* 2.49 in the series from the city of Iași, and 1.84 *versus* 1.69, respectively, in the rural series).

In the girls' series of (Tables 2 and 4, series: 2002), in the urban milieu, the growth increase is slightly higher for the brain-pan's width, comparatively with its length (*i.e.*, 3.52 *versus* 3.01), while in the rural group, the growth increase is with 1.64 higher for the length of the brain-pan, comparatively with its width (*i.e.*, 3.62 – length and 1.98 – width).

As expected, if considering the data offered by the literature in the field [1–8], by its two parameters, the brain-pan evidences macro-sizes in boys, comparatively with girls, in both urban and rural groups. Mention should be also made of the fact that the sexual differences are slightly higher for the length of the brain-pan, *versus* its width.

As to the rural-urban differences, they appear to be favorable to the urban group, in both our series and in those investigated by other authors [1–5], the values recorded being again higher for the length of the brain-pan, and not for its width.

The brain-pan's conformation, estimated by the value of the cephalic index, evidences its brachycephalic type towards the inferior limit of the category, the only exception being represented by the 7 years old girls of the city of Iași, whose brain-pan appears of the mesocephalic type at the superior limit of the category. For such a situation, one should mention that the variability amplitude of the values characterizing the four classes of age is narrower for the rural series than for the urban ones (*i.e.*, 0.23 in boys and 0.69 in girls in the rural milieu, *versus* 1.15 – boys and 0.95 – girls, in the urban one, respectively).

A comparative analysis of our own data with those provided by Maria Cristescu *et al.*, in 1976, evidences certain differences. Indeed, the average growth increase, recorded for ages between 7 and 10 years, is lower in the present series than in the 1976 ones.

As to the length of the brain-pan, it is, on the average, higher in the present series than in the 1976 ones, for all classes of ages, in both sexes and both ecological media, which confirms the occurrence of the micro-evolutionary

phenomena recorded in the literature [7]. The differences are nevertheless more significant in the urban than in the rural series, and generally more important in boys than in girls. However, the brain-pan is narrower in the present series, comparatively with the values recorded 30 years ago. The amplitude of the differences oscillates from one series to another, from one sex to another and from one class of age to another. The differences – both the minimum and the maximum ones – occur in the children from the rural area; thus, a minimum value of 0.53 is recorded for the 7 years old boys, while a maximum one of 2.36 – in the 10 years old girls.

A consequence of such differences – plus for length and, respectively, minus for width – is that, in the present series, the values of the cephalic index are much inferior to those recorded for the 1976 series, remaining, nevertheless, within the limits of the brachycephalic category, towards the inferior limit in the present series and towards the superior limit in the old ones.

The recorded differences occur between a minimum of 1.40 (in the 10 years old girls of the rural milieu) and a maximum of 3.49 (in the 7 years old girls of the urban milieu). Such differences are slightly higher in girls than in the boys in the urban milieu and, on the contrary, higher in boys than in girls in the rural milieu and, at the same time, smaller in the rural series than in the urban ones.

The sexual differences, favoring the boys both in the past and the present groups, are slightly higher in the present groups, with only one exception: the 9 years old children of the urban milieu. Indeed, in these children, the sexual differences are, on the contrary, slightly higher in the past series, than in the present one.

As to the urban–rural differences, always in favor of the children from the urban milieu, they are more significant in the present series, comparatively with the old ones, for the length of the brain-pan and, on the contrary, less important for its width. In this respect, stress should be laid on the fact that the values of the urban–rural differences oscillate, in the present series, between 2.55 and 3.64 in boys and, respectively, between 2.64 and 3.25 in girls, for the length of the brain-pan while, in the old series, the variations were between 0.86 and 1.75 in boys and 0.36 and 1.35 in girls, respectively. As to the width of the brain-pan, the urban–rural differences vary, in the present series, between a minimum of 1.03 and a maximum of 2.08 – in boys – and between 0.46 and 2.00 – in girls –, while, in the old series, they ranged between 1.61 and 2.25 – in boys – and, respectively, between 0.71 and 2.17, in girls.

There results from here that, while the urban – rural differences observed for the length of the brain-pan are obviously larger in the present series, for its width, they are only slightly higher in the old series, comparatively with the present ones.

As to the conformation of the brain-pan, expressed by the values of the cephalic index, in time, it has suffered slight modifications both as sexual dimorphism and as urban–rural differences. Thus, if in 1976, the sexual differences were, in the urban milieu, generally in favor of girls, in 2002 they

favorite the boys. For the children of the rural milieu, in 2002, the values recorded vary from one age to another, in favour of one sex or another while, in 1976, sexual differences appear only at the age of 8 years – in favor of girls – and at 10 years – in favor of boys. In 1976, the urban–rural differences are (with only one exception: 10 year old boys) in favor of the urban series while, in 2002 (again with only exception: 9 years old boys), in favor of the rural ones.

The facial massif is increasing, in both height (n-gn) and width (zy-zy) from one class of age to another, in both groups and for both sexes.

Nevertheless, for all 4 classes of age (7–10 years), the average growth increase is higher for height than for width, the differences being more obvious in girls than in boys (*i.e.*, 1.37 up to 2.30 for the former, *versus* 0.44 up to 0.64 – for the latter).

The same holds true for the 1976 series, however, the differences are more significant. The values of the growth increase are higher in girls than in boys, for both dimensions, in the urban group, but only for the height of the face in the present rural one.

Nevertheless, in the 1976 series, the sexual differences are almost negligible, from this perspective, for the width of the face, being favorable, however, to the height of the face for girls in both media. As to the urban–rural differences, they appear – in the case of boys – favorable to the rural series, while – in the case of girls – they favorite the urban series, for both sizes, in the 2002 groups. In the children of the 1976 series, these differences are much smaller, appearing different as orientation both as a function of dimension and sex.

In the present series, the values of the average growth increases are inferior to those recorded in the 1976 groups, with the exception of the face height, for the girls of the urban milieu, in whom the growth increases are equal.

As to the facial sizes, in both the present and the 1976 series, they are larger in boys than in girls – from both urban and rural media. Generally, the sexual differences are higher for the height than for the width of the face, in the groups of both media, both for the actual children and for those investigated 30 years ago. The urban–rural differences, usually favorite the urban series, for both the 1976 and the 2002 subjects, are generally more significant for the width than for the height of the face, with the exception of the girls from the 1976 series, in whom, at least for the 7 and 10 years of age, the differences are larger for the height of the face. As to the differences between the present and the past series, they are seen as oscillating in both value and orientation as a function of sex, age and milieu. Indeed, if considering the children from the urban milieu, it may be noticed that the actual series are characterized by a slightly larger face, *versus* the one of the 1976 subjects, for all classes of age, and slightly taller in 7–, 8– and 9–year old girls, and respectively 7– and 8–year old boys.

In the rural series, the differences between the facial sizes of the present and the 1976 children are, generally, more reduced than in the urban series, in favor of

the past ones, for some classes of age, not only for the height but also for the width of the face. Consequently, in the case of boys, the face is taller in the present series, comparatively with the old one, only for the age of 7 years while, for age of 10 years, it is also narrower.

The 10 years old girls of 2002 have not only a lower but also a narrow face, while, in the 9 years old ones, the differences noticed in both height and width are almost imperceptible – which is also the case of width, for the age of 8 years.

Facial conformation, as expressed by the values of the total facial index, shows that, in the urban series of both 1976 and 2002, the boys are characterized by a euryprosope type, while the girls – by a mesoprosope type face. In the case of boys, the values oscillate, in the present series, between 81.82 and 83.02 and, in the past ones, between 82.05 and 83.88, while in girls, the values range between 81.94 and 83.28 – in the actual series, and, respectively, 81.44 – 84.37 – in the 1976 series.

In the group coming from the rural milieu, the variability is somehow ampler as to the conformation of the face. Thus, the boys from the present series have, on the average, an euryprosope-type face at the age of 7 and 8 years, and a mesoprosope-type one at 9 and 10 years, while the ones belonging to the 1976 series are euryprosope only at the age of 7 years.

In the case of girls, with the exception of the 7 years old ones, in the 1976 group, characterized by an euryprosope type face, at the upper limit of the category, for all classes of age, in both series (*i.e.*, 1976 and 2000), the face is of the mesoprosope type. One may therefore observe that, from this point of view, sexual dimorphism is well expressed in the urban group (for both series), and weaker in the rural one. Indeed, while the boys from the urban milieu – both the present and the past ones – have, on the average, an euryprosope-type face for all classes of age, the girls are mesoprosope. In the rural series, at the present group, and only for ages of 7 and 8 years, the boys are euryprosope and the girls are mesoprosope, in the end both sexes being characterized by a mesoprosope – type face. In the old series, no sexual differences were recorded in this respect. Indeed, at the age of 7 years, both sexes show a euryprosope type face while, for the other ages, the face is of the mesoprosope type.

CONCLUSIONS

The general conclusion of this analytical study is that the sizes of both brain-pan and facial massif are larger in boys than in girls, in the present and past series, in the urban and rural milieu. The sexual differences are more easily visible for the length of the brain-pan and height of the face.

The urban–rural series differences are in favor of the children from the urban milieu, for both the cephalic brain-pan and facial massif. The value of the observed

differences is slightly higher for the width than the height of the face, in both historical moments. The length of the brain-pan is higher in the present series, comparatively with the past ones, while its width, on the contrary, is smaller. Consequently, the brain-pan is brachycephalic at the inferior limit of the category, in the present series, and, respectively, brachycephalic towards the superior limit of the category, in the past series. One might therefore conclude that the present series suffered a slight debrachycephalization process, comparatively with the older one.

The difference between the present and the 1976 series is more weakly expressed at the level of the facial massif and also weaker for the height than the width of the face, being however more evident in the urban series, comparatively with the rural ones. The conformation of the face is euryprosope in boys and mesoprosope in girls in the urban milieu, in both historical moments. Nevertheless, in the rural series, slight differences may be observed, namely that the euryprosope type face is present in boys, in the 7 years old ones of both historical moments, and in the 8 years old ones belonging to the 2002 series, the same type of face being nevertheless met in the 7 years old girls of the 1976 series. There results from here that, in the series of the rural milieu, the sexual differences – from this point of view – are more weakly expressed. Indeed, in the case of boys, the face is of the euryprosope, and also, mesoprosope type, in both historical moments while, in the case of girls, the face is – with the exception of the 7 years old ones in the 1976 series – of the mesoprosope type. Stress may be therefore laid in the fact that, in time (from 1976 until 2002), both the sizes and the conformation of the cephalo-facial segment suffered modifications, variable as a function of size, sex, age and milieu.

Table 1

Position and dispersion parameters of the main sizes and cephalo-facial indices
in 7–10 years old boys from the urban milieu (the city of Iași)

2002 series								
Age	7 years		8 years		9 years		10 years	
Character	M	δ	M	δ	M	δ	M	δ
G-Op	178.53	6.12	178.91	6.49	178.97	6.00	181.17	6.23
Eu-Eu	145.90	4.92	147.20	5.77	147.50	5.35	148.39	5.67
Zy-Zy	123.39	4.84	123.86	5.85	125.32	5.07	126.98	5.82
N-Gn	101.13	4.69	101.26	5.26	103.48	4.91	105.36	5.11
Cephalic i.	81.69	3.74	82.26	4.07	82.84	3.93	81.85	3.75
Facial i.	81.88	3.55	81.82	4.20	82.51	4.29	83.02	4.57
1976 series								
G-Op	173.13	6.34	174.70	6.15	175.88	6.24	177.23	6.26
Eu-Eu	147.01	4.59	148.45	4.61	149.24	4.68	150.20	4.81
Zy-Zy	120.46	4.05	122.38	4.07	124.20	4.26	126.03	4.23
N-Gn	98.70	4.79	100.54	4.68	103.70	4.60	105.82	4.72
Cephalic i.	84.92	3.72	84.91	3.93	84.88	3.64	84.04	3.75
Facial i.	82.05	4.12	83.15	3.93	83.50	3.92	83.88	4.03

Table 2

Position and dispersion parameters of the main sizes and cephalo-facial indices
in 7-10 years old girls from the urban milieu (the city of Iași)

2002 series								
Age	7 years		8 years		9 years		10 years	
Character	M	δ	M	δ	M	δ	M	δ
G-Op	173.84	6.02	174.56	6.21	175.59	5.78	176.85	6.02
Eu-Eu	141.64	4.92	143.23	4.53	145.00	4.59	145.16	5.65
Zy-Zy	119.46	4.51	121.09	4.77	123.05	4.60	124.77	5.24
N-Gn	97.46	4.80	100.16	4.60	102.26	4.52	104.14	5.43
Cephalic i.	81.67	3.54	82.14	3.68	82.62	3.89	82.33	3.69
Facial i.	81.94	4.72	82.75	3.83	83.00	4.26	83.28	4.03
1976 series								
G-Op	169.18	6.08	170.96	6.18	172.31	6.10	173.89	6.10
Eu-Eu	143.56	5.22	145.51	5.00	146.31	5.00	147.25	5.11
Zy-Zy	118.30	4.27	119.98	4.47	121.57	4.44	123.61	4.58
N-Gn	96.43	4.92	98.44	4.69	102.04	4.74	104.73	5.18
Cephalic i.	85.16	4.33	85.09	4.22	84.89	4.12	84.77	4.15
Facial i.	81.44	4.30	82.00	3.64	83.91	3.84	84.37	3.71

Table 3

Position and dispersion parameters of the main sizes and cephalo-facial indices
in 7-10 year old boys from the rural milieu (Iași County)

2002 series								
Age	7 years		8 years		9 years		10 years	
Character	M	δ	M	δ	M	δ	M	δ
G-Op	175.69	5.92	175.79	7.07	176.42	6.29	177.53	5.92
Eu-Eu	144.87	5.23	145.12	5.29	145.89	5.43	146.56	4.99
Zy-Zy	118.62	4.36	120.51	4.51	122.03	5.22	123.18	4.48
N-Gn	98.68	4.45	100.00	5.05	102.29	4.53	103.68	4.72
Cephalic i.	82.45	3.74	82.64	3.94	82.68	3.13	82.55	3.49
Facial i.	83.25	3.72	82.93	3.59	84.18	4.06	84.20	4.04
1976 series								
G-Op	172.27	5.22	173.10	5.31	174.14	5.67	175.48	5.82
Eu-Eu	145.40	4.59	146.46	4.52	146.99	4.70	148.04	4.68
Zy-Zy	118.31	3.60	119.97	3.70	121.90	3.86	123.54	4.06
N-Gn	97.45	4.69	100.28	4.49	102.73	5.19	105.16	4.68
Cephalic i.	84.64	3.45	84.05	3.63	84.48	3.43	84.36	3.42
Facial i.	82.17	3.86	84.05	3.60	84.84	3.87	84.93	3.38

Table 4

Position and dispersion parameters for the main sizes and cephalo-facial indices
in 7–10 year old girls from the rural milieu (Iași County)

2002 series								
Age	7 years		8 years		9 years		10 years	
Character	M	δ	M	δ	M	δ	M	δ
G-Op	170 59	5 66	171 88	6 13	172 54	5 50	174 21	5 81
Eu-Eu	141 18	4 74	141 46	4 73	143 04	4 53	143 16	4 47
Zy-Zy	117 31	3 78	117 89	4 43	120 00	3 87	120 87	4 73
N-Gn	95 44	3 74	98 60	4 85	100 26	4 67	101 30	4 20
Cephalic i.	82 88	3 73	82 34	3 46	83 03	3 32	82 34	2 88
Facial i.	81 43	3 95	83 42	3 73	83 59	3 82	83 60	4 34
1976 series								
G-Op	168 82	5 57	169 71	5 47	171 19	5 65	172 54	5 45
Eu-Eu	142 85	5 70	143 63	5 09	144 14	5 05	145 52	5 01
Zy-Zy	116 55	4 37	118 05	4 47	119 93	4 38	121 95	4 38
N-Gn	93 98	4 89	97 01	3 16	100 40	4 46	102 05	4 77
Cephalic i.	84 63	3 72	84 70	3 74	84 51	3 67	83 74	2 96
Facial i.	80 79	3 87	81 91	4 65	83 80	3 62	83 71	3 90

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INDICATORS OF DERMATOGLYPHIC DIAGNOSIS OF TYPE 2-DIABETES MELLITUS (T2DM) OR NON-INSULIN DEPENDENT DIABETES MELLITUS

ANA ȚARCĂ

The paper is an ample dermatoglyphic study developed on a group of 190 subjects affected by non-insulin dependent diabetes mellitus (T2DM), with ages between 40 and 82 years, all from Moldavia, in whom the disease appeared at ages between 34 and 75 years, and from whom 380 finger and palmar prints have been taken over. It has been observed that, regardless the patients' age, at the moment in which the disease started or of the complications it might have generated in time, the patients affected by T2DM evidence multiple and important dermatoglyphic distortions or anomalies bearing deep clinical significations. The results of the study, which is the first at the national level from a dermatoglyphic perspective, suggest possible utilization of dermatoglyphics as "markers" in the precocious discovery of the persons with diabetogenic risk, as well as reference data in the disease screening of the population level, at least in the Moldavian area.

INTRODUCTION

According to the estimations of the World Health Organization (WHO), of the International Diabetes Federation (IDF) and of the European Associations for Study of Diabetes (EASD), one may conclude that, nowadays, ***Diabetes represents one of the major threatenings of public health worldwide, if considering the dramatically increasing epidemic ratios it attained at planetary level*** [30, 31, 32, 33].

The first to be affected by this new epidemic of the 21st century will be the undeveloped and the developing countries, estimations being made that they will record about 80% of the newly-occurring patients, belonging especially to the active population (between 35 and 65 years) while, in the developed countries, where the number of the existing patients will double, persons around 65 years and over will be affected.

The rapid evolution of ***diabetic pandemia*** mainly of non-insulin dependent diabetes mellitus – is the result of the process of population's aging, of the rapid socio-cultural changes, of the increasing urbanization process, of the modifications intervening in life – all known as inducing and generating stress [5, 10, 11, 12, 32].

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Against the background of an ever-increasing epidemiological phenomenon at worldwide level, the epidemic of type 2 diabetes, predominantly, will extend in Romania, too, as a result of globalization manifested in the new style of life adopted in recent years – *i.e.*, a hypercaloric alimentary regime, the absence of any physical activities (sedentary), etc., especially at ages over 40 years, when this type of malady starts. Out of the 450, 000 cases of diabetes recorded in Romania [6, 7, 9, 31] – to which at least an equal number of non-diagnosed cases should be added – 93% are of type 2 and only 7% of the insulin-dependent one (type 1). Yearly, in Romania, about 50.000 new cases of T2DM are recorded, out of which about 85% are supra-ponderal and obese persons (which explains the other name given to T2DM, of „fat” or “constitutional” diabetics) and only 15% are of normal weight; also, 47% of them are affected by HTA, 55% – by dislipidemia, 37% – by cardio-vascular diseases, 22% – by neuropathies, 12% – by retinopathies and 5% – by nephropathies, all of them being considered devastating and irreversible complications generated by diabetes, in general, and by type 2, especially.

All these considerations justify once more the idea that, at least for the coming 25 years, this highly severe syndrome will be – together with myocardium infarction and cancer – the main cause of mortality and morbidity. Unlike diabetes of type 1, studied by the author in previous papers [26, 27], non-insulin dependent diabetes mellitus has a much slower debut, sometimes even unapparent or hidden by another affection-generated, nevertheless by itself (even if the obvious clinical signs are usually the same as in T1DM), and also more related (as a rule, at ages older than 40 years); it does not require insulin-therapy, but only a suitable diet, sometimes associated with anti-T2DM drugs for regulating the high values of glycemia (when exceeding the maximum threshold of normality of 120 mg/dl blood).

Up to ages of 50 years, the T2DM is more frequent in men, after 60 years, the ratio is generally reversed – T2DM is more frequent in women, remaining as such until ages of 80 years and over; between 50 and 60 years, an interval corresponding to andropause in men and postmenopause in women, the incidence is quite low in both sexes.

Nowadays, in the light of the most recent advances recorded in etiological, pathogenic, diagnostic and therapeutical fields [2, 5, 6, 9, 16, 17, 33], *the diabetes of type 2 may be defined as an etiological heterogeneous complex of affections, inducing a deep and many-sided disturbance of the energetic metabolism, involving – in a variable ratio – a deficient insulin secretion from the part of the beta pancreatic cell, on the one hand, and a resistance of the periphery tissues in using insulin for the transport of glucose in the blood and for its subsequent transformation into glycogen, as a reserve energetic substance (the so-called insulin-resistance one), on the other hand.* From an etiological perspective, the causal factors involved in insulin-secretion deficiency (the first side of T2DM) are

numerous, among them a special part being attributed to: ***the reduction of the mass of beta cells (the insulin-secreting ones)*** with about 30–40% comparatively with the normal values, a situation determined – in its turn – either genetically or by a prolonged hyperglycemia, in the blood – which is toxic for such cells; ***modification of the oscillating pattern of insulin secretion, in persons liable to T2DM – risk - up to the disappearance of this vital hormone in its first stage; and to an increased proinsulin ratio in blood***, as a result of its lower conversion into insulin, with increasing age, etc. [14, 22].

As to insulin-resistance, the second side of T2DM, it may be – in its turn – conditioned either genetically or by an excessive accumulation, of free fatty acids, in the blood, followed by their deposition in the muscular tissue as triglycerides, which impedes the transport and retention of glucose with 40% *versus* the normal values and the synthesis of glycogen with 60%, thus facilitating the death-through programmed apoptosis of some of the muscular cells and sensibilization of the remaining ones in utilizing insulin. Consequently, the risk of being affected by T2DM increases with the increase of bodily weight and with obesity – especially the abdominal one.

From a hereditary view, the studies performed on twins, on families including several persons affected by T2DM [1, 5, 6, 9, 13, 18], followed along 3–4 successive generations [20,28], evidenced a considerable genetic charge of T2DM, as demonstrated by a concordance coefficient of the malady, in univitelin twins, of about 100%, as well as by a higher risk of its manifestation in first removed relatives of the persons affected by T2DM – of 20 – 40%, comparatively with values of 3-6% –, usually recorded for the normal population. Similarly with T1DM, the genes involved in T2DM are multiple – hundreds, according to some authors [6, 7, 9, 13, 18, 20], some of them being responsible for the susceptibility to T2DM, others for the genesis of the malady, others assuring the resistance of the organism to the disease. In spite of the fact that the mechanism through which the multitude of genes do intervene either in the insulin-deficiency or in the insulin-resistance process is not known for the moment, as it is also the case of the way in which the T2DM is transmitted to descendants (both remaining, still, open questions), one may assert that an important part is played by the genes situated on chromosomes [1, 2, 3, 6, 7, 9, 10, 12, 18, 19].

On the basis of all the above observations and considering, too, the well-known relation between dermatoglyphics and the disease, generally, which is reflected in the fingerprints of the affected ones by sketches or signals bearing deep clinical significance, the present paper analyzes, from a dermatoglyphic perspective, a group of patients suffering from T2DM, all coming from Moldova; to the best of our knowledge, this is the first study of this type developed at national level.

MATERIALS AND METHOD

In the summer of 2005, dermatoglyphic investigations have been developed, at the Center for Diabetology of “Sf. Spiridon” Clinical University Hospital of Iași, on 190 patients (60 men and 130 women) – with ages between 40 and 82, affected by either non-insulin dependent diabetes mellitus – or T2DM from whom 380 dermatoglyphic digit-palmary files have been taken over. Most of the people forming the group under study – of both sexes (95% men and 91% women) are 50 years old or older. In parallel with the finger printing activity, an individual inquiry has been launched, as to the age at which the T2DM occurred or was discovered, as to the general health condition of the patients, as well as to the presence or absence, within one’s family, of other persons suffering from T2DM or even T1DM. The conclusion reached was that the youngest age at which the T2DM had been discovered was of 34 years in women and 35 years in men, while the oldest one was of 79 and, respectively, 80 years, an important specification being nevertheless made, namely that, in most patients (60% of the women and 63% of the men), the malady occurred between 50 and 65 years of age. Equally, only few are the cases recorded in the batch under analysis in which T2DM began by clinical signs specific to such malady (*i.e.*, asthenia, fatigue, polyuria, polydipsia, polyphagy, etc.), in 33.33% of the men and in 38% of the women it had been discovered by routine tests while, in the rest of the patients – by physicians whom they consulted as a result of their poor health condition: high blood pressure, ischemic cardiopathy, myocardium infarction, obliterate arteriopathy in the inferior members, arthritis, hepatitis, hepatic cirrhosis, polyneuropathy, reduction of visual acuity, etc., all of them being largely induced by the unapparent type 2 diabetes. The same inquiry evidenced that in 30% of the men and 39% of the women, T2DM is of the hereditary type (in the family of the patients existing at least 2–3 once – or twice – remoted relatives), the average ratio of the hereditary forms being, at the level of the whole sample, of 35.78%. For all dermatoglyphic characteristics the pathological significance of which had been evidenced, there have been followed: the sexual dimorphism, the bilateral differences, as well as their distribution succession on fingers. Processing of the results, along with their analysis and interpretation, was made not according to the above-mentioned criteria (age at its debut, heredity, etc.), but at the level of the whole group and on sexes. As the dermatoglyphic anomalies at group level are but deviations in the frequency of some dermatoglyphic characteristics from the values recorded in the apparently normal population from which the patients come and inversions from the classical line of the distribution of such peculiarities as a function of sex, laterality and finger, the results obtained have been compared with the ones recorded on a reference sample from Moldavia [24], as well as with those attained on a sample of T1DM affected subjects coming from the same geographical area [26, 27].

The working methods applied have been the ones frequently used in investigations of pathological dermatoglyphics [4, 8, 15, 23, 25].

RESULTS AND DISCUSSION

The individual analysis of the dermatoglyphic files of T2DM – affected patients evidenced that, regardless of the age at which the malady had been discovered, or of the complications it came to cause in time, they all evidence, in their fingerprints, important distortions or anomalies, bearing severe clinical implications [8, 15, 25] – such as either signs or malformed sketches of the malady. Most of the carriers (55% of the men and 50.0% of the women) show 3 or 4 such anomalies while, for the rest, 25% of the men are carrying 1 or 2 anomalies, 20% – 5 or 6 anomalies; in the case of women, 26% evidence 5 or 6 distortions of this type, 17% – only 1 or 2, while 7% – up to 8 or 9 anomalies. The large range of distortions thus evidenced illustrates, in a suggestive manner, the poor health condition of many of the carriers, viewed from a dermatoglyphic perspective.

As to the deviations from normality (anomalies) **at the level of the digital dermatoglyphic picture** of the affected people, on which stress will be laid in the present study, at the level of the whole sample, they refer to:

- ***a sensible increase of the arches' frequency (A)***, on the average, up to 10%, *versus* only 3.70% – the value recorded in the reference batch - a peculiarity also noticed in other European groups affected by T2DM [15, 23], and in T1DM [26, 27] – affected persons, as well – which provoked another distortion, namely a lower weight for the loops (L), comparatively with the normal values (Table 1);
- ***an important deviation from the classical line of the sexual dimorphism for A*** which, instead of double ratios for females, comparatively with males, records practically equal values in the two sexes, even an exceeding tendency from the part of men, comparatively with women (10% in men and 9.8% in women).
- ***a certain diminution of the bimanual differences for all the three main digital patterns (A, L, W)***, especially in the feminine series, instead of a weight of majority for A and L on the left hand and, respectively, for W on the right hand.
- ***modification of the classical distribution succession of A and W on the 5 fingers, but only for positions 3, 4 and 5 in the diagram***, a situation evidenced by the author in T1DM, as well (Table 1).
- ***an increased incidence on fingers***, comparatively with the normal situation, ***of some extremely rare structurally - intricate patterns*** of the following types: lateral pockets (LP), central pockets (CP), twin loops (TL) or a combination of two patterns on the same finger (A + L, L + W, etc.), which, similarly with the case of T1DM patients or of the reference sample, prevail on the left hand and on fingers I > II > III (Table 1).
- ***a sensible increase of the frequency of racketoid-type loops*** (patterns which are absent in the reference group), in practically equal ratios in the two sexes (6.07% in women and 6.0% in men), somehow more frequent on the patients' left hand (on the average, 6.84% *versus* 5.26% on the right hand) and especially on fingers IV and V – as it is the case of T1DM, followed, in decreasing order of their value, by III = II > I.

- **a higher frequency, comparatively with the normal case, for the radial orientation of the digital patterns, considered all together (A, L, W)** which, on the average, records 12.16% in men and 9.31% in women. As in the case of T1DM, radial orientation tends to be more frequent on the left hand of patients suffering from T2DM (13.66% in men and 9.84% in women, *versus* 10.66% and, respectively, 8.77%, on the right hand), instead of the right one – as occurs in normal people [23, 24, 26, 27], a reversion from the general classical tendency bearing deep medical significance [8, 15]. The distribution on fingers of the radial orientation in patients affected by T2DM is identical to the one recorded in T1DM, yet different from that of the reference sample in positions 4 and 5 in the classical scheme (Table 1).

- **A last distortion** put into evidence by the author, also observed in other T2DM-affected European groups, and present – too – in T1DM, even in similar frequencies, **refers to the hand and to the individual monomorphism**, by means of which the two series of patients, followed comparatively (Table 2), differ significantly from the Moldavia population which they come from. Mention should be made of the fact that, in Table 2, in both forms of diabetes, the women record higher frequencies than the men (*i.e.*, reversed *versus* normality) – in the case of either left and right hand (the same type of pattern on all the 5 fingers) or of individual (the same type of pattern on all the 10 fingers) monomorphism - all of them bearing deep clinical significance for the carriers [8, 23, 25].

CONCLUSIONS

The study of digital dermatoglyphics on T2DM-affected patients evidenced, similarly with the T1DM-affected ones from the same geographical area of Moldavia, an ample and intense pathological charge, suggestively expressed by the presence, in their fingerprints, of some distortions bearing pathological significance. They should be correlated, too, with a complex clinical picture of the malady – as manifested in numerous patients (60%), in whom diabetes is associated with certain complications generated by it, and which affected their health condition to a considerable extent. At the level of the whole group taken into study, such dermatoglyphic distortions attain frequencies which explain the highly similar behavior of T2DM patients to that of the T1DM ones, and also the fact that clinical signs of the malady are usually the same in the two forms of diabetes, with the only difference that, in the case of T2DM, its occurrence is much more belated (over ages of 40), frequently atypical, slow and sometimes even hidden by another affection, so that its discovery may be made in a much advanced phase of its evolution. Consequently, **the frequencies recorded by the author for such distortions might be further employed as reference information in the screening methods of discovery for T2DM – and even T1DM – tracing at population level**, at least for Moldova, the region to which all patients belong.

At individual level, the above-described anomalies might be used *as “markers” in a precocious diagnosis of the malady in persons with T2DM risk* – even prior to the manifestation of the first clinical signs. This is possible, as the distortions put into evidence suggest the intervention of the genetic factor and, partially, even of the teratogeneous one – at the level of the uterus, in the appearance of diabetes as early as the first moments of the prenatal period, when the epidermal papillary ridges are being formed, responsible for the first obvious clinical signs being actually the external factors that may intervene in the postnatal life around the age of 40, or later, among them a special part in T2DM being played by stress, sedentary, unrational and hyper caloric diets, etc.

Table 1

Comparative data on the frequency of digital distortions in T2DM

Digital distortions	Affected people and the reference sample	%	Sexual differences	Bilateral differences	Succession of distribution arrangement on the 5 cumulated fingers
A on total of fingers	T2DM	10.00	M $\approx$ F	L $\geq$ R	II > III > I > V > IV
	T1DM	7.67	F > M	L > R	II > III > I > V > IV
	Reference sample	3.70	F > M	L > R	II > III > V > IV > I
L on total of fingers	T2DM	60.00	F > M	L $\approx$ R	V > III > I > IV > II
	T1DM	60.22	F > M	L $\approx$ R	V > III > IV > II $\geq$ I
	Reference sample	71.00	F > M	L > R	V > III > I > IV > II
W on total of fingers	T2DM	30.30	M > F	R $\geq$ L	IV > I > II > III > V
	T1DM	32.10	M > F	R $\geq$ L	IV = I > II > III > V
	Reference sample	27.50	M > F	R > L	I > IV > V > III > II
Structurally intricate patterns	T2DM	2.16	M $\geq$ F	L > R	I > II > III = II > V
	T1DM	3.23	M $\geq$ F	L > R	I > III > II > IV = V
	Reference sample	0.20	M > F	L > R	I > II > III > IV > V
Racketoid type loops	T2DM	6.05	F = M	L > R	IV > V > III = II > I
	T1DM	8.04	F > M	L > R	V > IV > II $\geq$ III > I
	Reference sample	–	–	–	–
Radiality of the digital structures	T2DM	10.21	M > F	L > R	II > III $\geq$ IV > I > V
	T1DM	9.77	F > M	L $\geq$ R	II > III > IV > I > V
	Reference sample	2.85	M > F	R > L	II > III > V > I > IV

T2DM = Diabetes Mellitus Type 2 (N=190 of which 60 men and 130 women)

T1DM = Diabetes Mellitus Type 1 (N=133 of which 58 men and 75 women)

Reference sample (N = 200 of which 100 men and 100 women)

Table 2

Comparative data on the frequency of hand and individual monomorphism

Affection	Sex	Monomorphism		
		Left hand	Right hand	Individual
T2DM	Males	20 00	23 33	8 42
	Females	30 00	23 08	13 85
	M + F	26 84	23 15	12 13
T1DM	Males	24 13	15 51	10 34
	Females	28 00	26 66	17 33
	M + F	26 31	21 80	14 28
Reference sample	Males	15 00	9 00	4 00
	Females	13 00	8 00	2 50
	M + F	14 00	8 50	3 25

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ANTHROPO-MEDICAL AND CULTURAL ASPECTS OF AN OVO-LACTO-VEGETARIAN SAMPLE AS COMPARED WITH AN OMNIVOROUS ONE

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This paper compares the nutritional behaviors of an ovo-lacto-vegetarian sample that eliminated meat from alimentation and an omnivorous one, while stating some social, cultural and anthropo-medical parameters of the two samples. 105 ovo-lacto-vegetarians were selected (70 women and 35 men) and 113 omnivorous (67 women and 46 men). Data concerning age, educational level, civil status, religion, daily meals regularity, daily meals number, the existence of some additional behavior (fasting, diet, etc.) and weight and height for body mass index computation, were taken. Most ovo-lacto-vegetarians declared that the arguments that convinced them to adopt this diet were health status improvement (31.15% for women and 35.19% for men) and psychical and spiritual status improvement (35.25% respectively 37.04%). Data show that the ovo-lacto-vegetarians have a body mass index (BMI) value, in both women and men (21.70 kg/m² respectively 23.70 kg/m²) smaller than the omnivorous (23.72 kg/m² respectively 24.95 kg/m²).

Data also attest that there are no important differences between the two samples concerning the nutritional behaviors and the persons who became ovo-lacto-vegetarians do not have a cultural or social, distinctive pattern or typology.

In medical anthropology nutritional behaviors are often studied, especially concerning their possible effects on the health status. It is known that many of the health problems are caused by inadequate, excessive nutritional behaviors that lead to obesity, severe deficiencies or are aggravating factors in many chronic diseases.

In the world there are a variety of nutritional behaviors, according to economic, regional, climatic or cultural factors. The nutritional types, specific for some countries or population, have been studied and the existence of some associations between certain traditional diets and some specific health problems have been discovered. A high incidence of stomach or lip cancer is known in Asian Countries, important consumers of hot spice and salted fish [5, p. 69] and of obesity in countries that adopted the specific American nutritional diet, fast-food type, with many lipids and calories [5, p. 45]. Instead, the Greek traditional diet, rich in fruits, vegetables and olive oil is recognized as a healthy nutrition, with many beneficial effects on the health status. [4]

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Vegetarian diet became well known in the medical world due to numerous studies realized lately, most of them pointing out the effects of this long-term diet on the human organism and its health status. Nutritional daily intake, vitamins, minerals, amino acids intake and the association between this diet and some metabolic, chronic or nutritional diseases were studied [3].

The results are controversial but the evidence seems to show an association between this diet and a low risk for type II diabetes, cardiovascular diseases and even certain types of cancer [1,2].

This nutritional type was often studied by medical anthropology methods in order to monitor the beneficial or harmful effects on the health status.

MATERIALS AND METHODS

105 ovo-lacto-vegetarians (70 women, 35 men) were selected and their data were compared with those of an omnivorous sample, composed of 113 individuals (67 women and 46 men). A questionnaire was applied in order to obtain data concerning age, educational level, religion, civil status, daily meals regularity, daily meals number and the existence of some additional nutritional behavior (fasting, diet, etc.). In addition, for the studied sample there were some supplementary questions concerning the reasons that convinced them to adopt this diet and for how long. Also, weight and height for each person were measured in order to evaluate the physical constitution, by body mass index computation.

For data processing and their statistical analysis, relative frequencies, mean values, standard deviations, chi-square and tests of significance were calculated for all studied parameters.

RESULTS

This study means to compare the two samples, the vegetarian one with specific characteristics that will be pointed out and the control sample, from the general population, from the point of view of nutritional behaviours and the main characteristics (social, cultural and anthropo-medical).

Therefore, the data were separated in three specific sections: socio-cultural (educational level, religion, civil status), anthropo-medical (gender, age, weight, height, BMI) and nutritional behaviour (arguments for vegetarianism, period of vegetarianism practice, existence or non-existence of a regular meals schedule, mean number of daily meals and diet or fasting, supplementary to the declared alimentation type).

From the socio-cultural point of view, the obtained data show that most subjects are orthodox Christians, in both vegetarian and omnivorous samples. Thus, 91.30% of the omnivorous men are orthodox Christians and the rest of 8.70% chose not to answer this question. In the case of omnivorous women, 98.51% of them are orthodox Christians and the rest (just one person) Romano-Catholic.

In the ovo-lacto-vegetarian sample, 97.14% of the women and 88.57% of the men are orthodox Christians. In addition, in the women sample there is one Muslim and one subject who would not answer. In the men sample, there is also one Muslim, two subjects who did not answer and one who is Romano-Catholic.

The data concerning the civil status of the two samples show that 58.21% of the women and 69.57% of the men in the control sample are married while in the vegetarian sample only 45.71% of the women and 42.86% of the men are married.

Concerning the educational level it is to notice the high number of people with a university education in the ovo-lacto-vegetarian sample (80% of the women and 68.5% of the men), while in the control sample the percentages are much smaller (49.25%, respectively 30.43%). 34.33% of the omnivorous women and 32.61% of the omnivorous men have a medium educational level (high school) and 16.42%, respectively 36.96%, have only an elementary educational level (primary school). In the vegetarian case, only 17.14% of the women and 31.43% of the men have a medium educational level and only 2.86%, respectively 0.00%, have an elementary educational level.

The main anthropo-medical characteristics of the two studied samples are shown in Tables 1 and 2. Concerning age, in the ovo-lacto-vegetarian sample the mean ages are 35.5 years for women and 34.66 years for men, lower than those of the omnivorous sample, where the mean ages are 39.34 years respectively 44.89 years. It is worth noticing a lower BMI value in the vegetarian group, in both women (21.70% kg/m^2 , respectively 23.72% kg/m^2 , statistically significant for $P < 0.001$) and men (23.71 kg/m^2 , respectively 24.95 kg/m^2 , statistically significant for $P < 0.02$). For overweight, evaluated by a BMI value higher than or equal to 25 kg/m^2 , according to WHO definition, our data show that only 18.57% of the women and 28.57% of the men, in the ovo-lacto-vegetarian group frame in this class, while in the omnivorous group 32.84% of the women and 43.48% of the men have a higher value of BMI than the critical value of 25 kg/m^2 .

The nutritional behaviour of the two samples was studied according to some characteristics that seem interesting to us. First, we were interested in the arguments to choose such a severe diet, for the ovo-lacto-vegetarian subjects. As it can be seen in Figure 1, the most vegetarians said that the reasons that convince them was the improvement of their health status (31.15% of the women and 35.19% of the men) and the improvement of psychical and spiritual status (35.25%, respectively 37.04%). To heal some specific diseases was recognized as an important reason for this decision by 16.39% of the women and 11.11% of the men. Only 2.46% of the women and 7.41% of the men adopted the vegetarian diet at the medical request. The respect for the animal life is an important argument for approximately 7% of the vegetarian from both genders. The care about one's own weight and religious forbiddance seem that are not a strong argument to become vegetarian in our country, less than 3% of the women and none of the men choose them as reasons for diet changing. 2.45% of the women and 1.85% of the men have other different reasons for that.

Table 1

The main characteristics of the ovo-lacto-vegetarian sample

Sample	Ovo-lacto-vegetarians											
	Women (n=70)				Men (n=35)				Total (n=105)			
Characteristic	Average	Min	Max	σ	Average	Min	Max	σ	Average	Min	Max	σ
Age (years)	35.5	19	59	9.22	34.66	16	82	12.97	35.22	16	82	10.56
Weight (kg)	58.51	42	83	10.57	74.46	55	105	12.77	63.83	42	105	13.58
Height (cm)	164.01	152	180	5.55	177.09	163	195	7.38	168.37	152	195	8.74
BMI (kg/m ²)	21.70	15.89	30.86	3.46	23.71	16.79	31.35	3.49	22.37	15.89	31.35	3.58

Table 2

The main characteristics of the omnivorous sample

Sample	Omnivorous											
	Women (n=67)				Men (n=46)				Total (n=113)			
Characteristic	Average	Min	Max	σ	Average	Min	Max	σ	Average	Min	Max	σ
Age (years)	39.34	19	75	14.01	44.89	16	76	13.95	41.59	16	76	14.20
Weight (kg)	62.68	45	118	13.87	75.05	52	120	13.66	67.78	45	120	15.00
Height (cm)	162.55	150	178	6.12	173.28	156	184	5.87	166.92	150	184	8.00
BMI (kg/m ²)	23.72	17.31	38.53	4.71	24.95	17.99	37.03	4.07	24.22	17.31	38.53	4.48

Second, it was interesting for us to study the mean period of permanent vegetarianism practice in the vegetarian group. After the obtained data were analysed we can say that this is 8.25 years (standard deviation is 3.69) for women and 7.47 years (standard deviation is 4.02) for men.

In order to study the nutritional behaviour we want to find out if the subjects have or not a regular daily meals intake. Our data shows that 74.29% of the women and 85.71% of the men from the vegetarian sample do not have a regular daily meals intake, while in the reference sample the figures are smaller: 73.13%, respectively 39.13%.

The number of daily meals on genders, comparatively between the two groups, is shown in Figures 1 and 2. For women, one can see that the most part of them have three daily meals (approximately 44% of both samples). The women that have two daily meals are also well represented in both samples (32.86% of the ovo-lacto-vegetarians and 37.31% of the omnivorous). A significant percent of the vegetarian women (11.43%) have a daily intake divided into four meals while only 7.46% of the omnivorous ones sympathise with the same nutritional behaviour.

Generally, the men from both samples seem to prefer also to have two or three meals per day in a percentage that exceeds 50% in the case of three meals. For all other categories the percentages are null, except for 4.35% of the omnivorous men that have one meal per day only and 10.87% of them that have four daily meals. The differences between the two samples are not statistically significant according to the chi-square distribution, comparatively, on genders.

Although ovo-lacto-vegetarians avoid meat and meat products in their nutrition, it is interesting to notice that many of them have some other supplementary diet or fasting. Thus, 21.14% of the women and 45.71% of the men are fasting or avoid all animal product (meat, milk, eggs) one day per week, usually on Friday. Also, 31.43% of the women and 22.86% of the men are fasting in a Christian way for 30-40 days a year, usually on Lent and Christmas period. 31.43% of both vegetarian women and men affirmed that they do not fast or have supplementary diet or nutritional behaviour but ovo-lacto-vegetarianism.

In the omnivorous sample, 13.43% of the women and only 6.52% of the men are fasting one day per week and 25.37%, respectively 15.22%, are fasting in a Christian way for 30-40 days a year. And much more subjects than in the vegetarian group affirmed that they do not fast or have supplementary diets or nutritional behaviours: 52.24% of women and 76.09% of men. The differences are statistically significant for $P < 0.001$ for the distribution of fast and supplementary diet on genders, in the two samples.

It is interesting to point out that several women of both studied samples are fasting in a Christian way completely, namely both the main fasts known in Orthodox religion and one day per week, usually on Friday, how the ecclesiastic canons recommend (10% of the ovo-lacto-vegetarian women and 8.96% of the omnivorous ones).

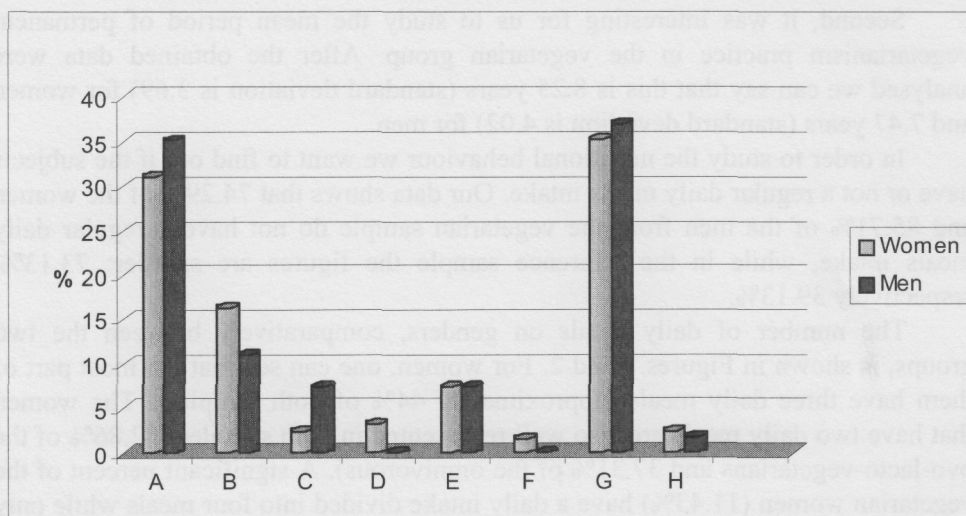


Fig. 1. – The reasons to adopt an ovo-lacto-vegetarian diet.

Legend:

- A: health status improvement, in general
- B: to heal some specific diseases
- C: medical request
- D: care for one's own weight
- E: respect for the animal life
- F: religious / spiritual groups forbiddance
- G: psychical and spiritual improvement, in general
- H: other reason

DISCUSSION

Accomplishing that kind of complex study about an ovo-lacto-vegetarian sample, comprising data about both nutritional behaviour and social status and body constitution, one can realize a complete image and provide a deep understanding of this cultural phenomenon, with medical and biological effects on the human body, that tends to develop in Romania, too.

Our data show that vegetarianism is a complex phenomenon that cannot be associated to a certain religion or spiritual group, a specific religious or medical doctrine or culture. It is a nutritional behaviour adopted by several people because of different reasons, usually because of their care for health status or their psychical welfare retrieving or developing, who cannot be young or aged, workers or intellectuals, religious or even atheist.

One can see that the cultural or behavioural differences are not substantial when comparing the two samples, the ovo-lacto-vegetarian one with subjects' age range between 16 and 82 years and the omnivorous one, with subjects' age range between 16 and 76. It is true that there are a high percentage of subjects with a university education in the ovo-lacto-vegetarian sample case, for both women and men, who also have a restrictive nutritional behaviour, even beside the ovo-lacto-vegetarian diet already adopted for a long time period (average, 7–8 years), but there is not a specific typology or pattern of people that become vegetarians.

But it seems that many more ovo-lacto-vegetarians than omnivorous ones do not have a regular daily meals intake schedule and it is possible that the low caloric intake, specific to a plant based diet, to determine the vegetarian women to increase the number of daily meals up to four, five or even more. While in the men case there is not a similar tendency, not even one single vegetarian affirmed that he ate 4, 5 or more times a day.

Another interesting thing to notice is the high tendency of women from both samples to fast, either one day per week or many days per year or even a complete Christian fast, while many men declared that they are never fasting (76.09% of the omnivorous and 52.24% of the vegetarians).

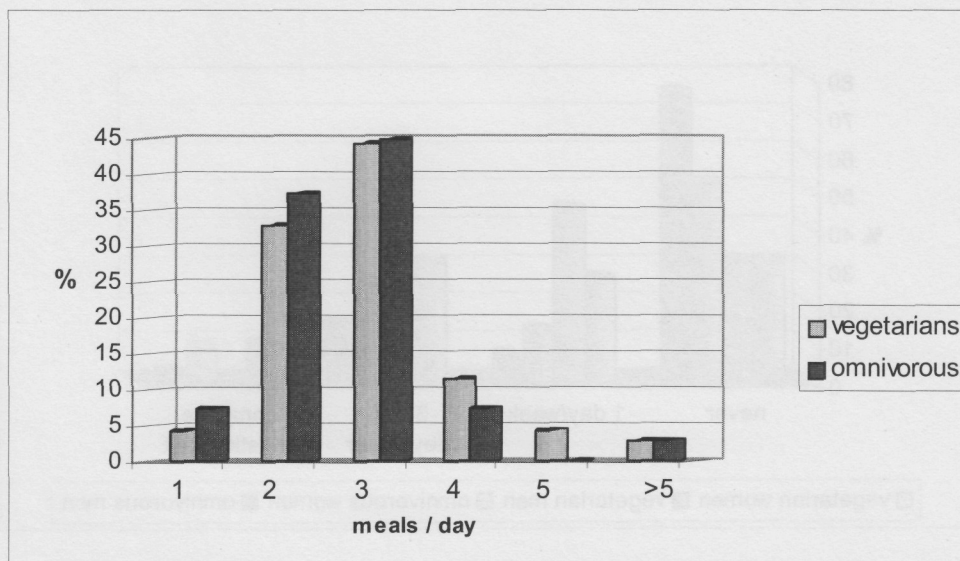


Fig. 2 – The number of daily meals of ovo-lacto-vegetarian and omnivorous women, comparatively.

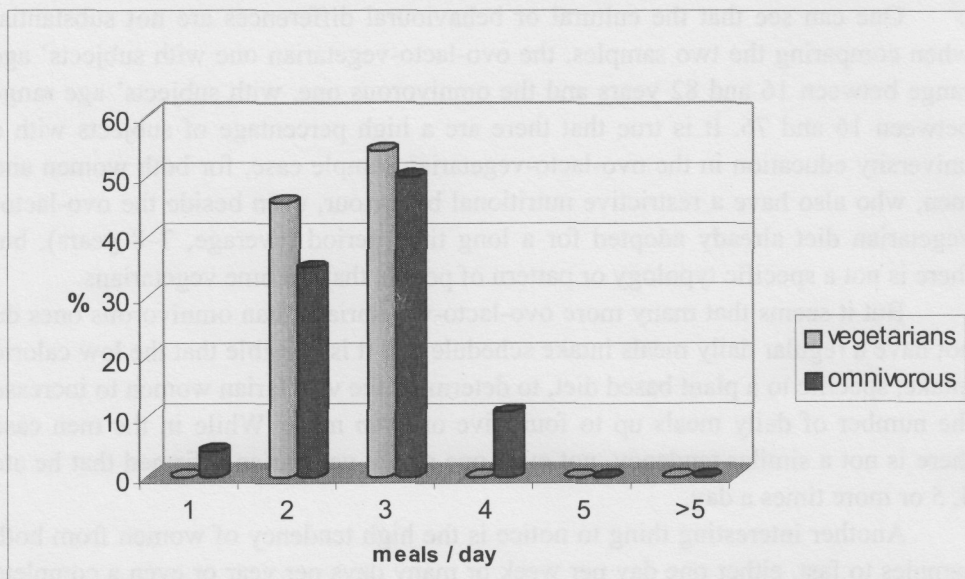


Fig. 3 – The number of daily meals of ovo-lacto-vegetarian and omnivorous men, comparatively.

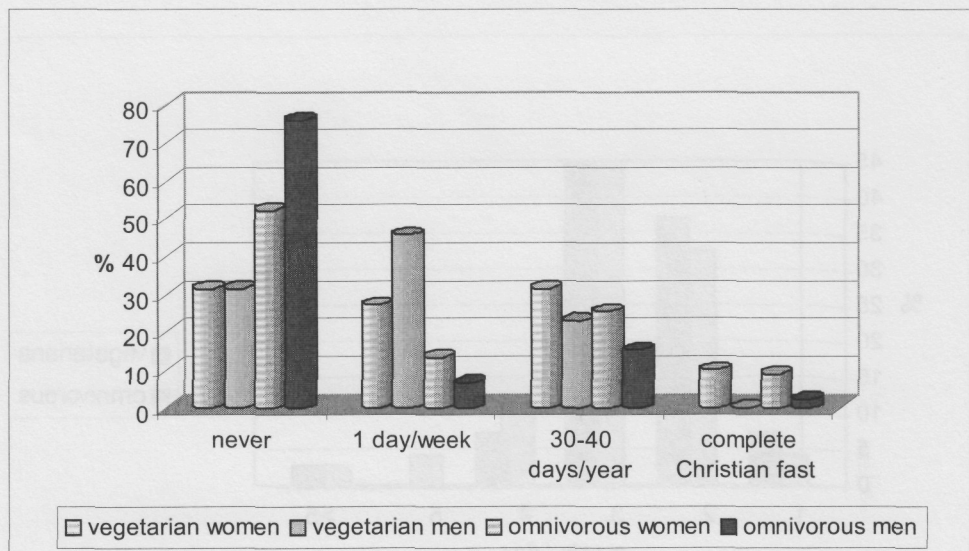


Fig. 4 – Fasts and supplementary diet for the two samples, comparatively.

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RACE CONCEPT ON INTERFACE THEORY *HOMO GEOGRAPHICUS*

CORNELIA GUJA

At the Seventh Inter-Congress of the International Union of Anthropological and Ethnological Sciences (IUAES, 2005 Czech Republic) which had the theme "Racism's Many Faces Challenge to all Anthropologists and Ethnologists", I presented the theme "Race as Ecological Interface A Model of the Human Being as a Complex of Interfaces". There were 63 accredited participants (papers respectively) from 23 countries, devoted to a sequence of 15 plenary sessions. Making a synthesis of the themes, abstracts and oral expositions I observed the *absence of a scientific commune objective methodology* for defining the terminology and for differentiating the races as biological typology [14]. It is very important to be able to demonstrate and to emphasize, from the anthropological point of view, the advantages and disadvantages of environmental physiological adaptation in correlation with psychological and cultural behavior. In this paper, we have shown the human being as a complex of interfaces between nature and society (seven specific interfaces and three fundamental interfaces). We represent the race by *the first of these ten interfaces: ecological-integrating interface, specific of the variability of human races*, more correctly called by us *Homo Geographicus*.

Motto "Any conception concerning life deriving only from biology *is subhuman*, but life conception *shouldn't be contradictory to biology*" (Francisc I Rainer, Romanian anthropologist)

Keywords: ecological interface, race, adaptive type

INTRODUCTION

In this paper, we have shown the human being complex interfaces between nature and society, in which the information (similarly computer technology) coming from the outside environment is received, stored, memorized, processed and re-transmitted in a form of its own, within a global natural informational circuit. We represent the race by *the first of all interfaces: 1. Ecological-integrating interface, specific of Homo Geographicus*.

The outward signs on which most definitions of race are based – such as skin color and hair texture – are dictated by a handful of genes. Yet, the other genes of two people of the same "race" can be very different. Conversely, two people of different "races" can share more similarity than two individuals of the same race. Scientists can use genetics to sort large populations according to their ancestral geographic origin. This approach does not work in the same way for populations

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resulting from mixing with other groups, however. The medical implication of racial genetic differences are still under debate.

As a first step to identify links between the social definition of race and genetic heritage, scientists need a way to divide groups reliably according to their geographical ancestry [3, 4, 5].

We have studied in the laboratory of the individual's anthropology, the interface of the human organism in direct contact with the environment by means of the skin system (tegument). *Tegumentary system* mediates, at the same time, individuals' perception in society with the external aspect of the body and by means of the characteristics that generally differentiate races. We have made up *a model of the human being, comprising ten interfaces*; man is described by a sequence of interfaces, seven specific interfaces and three fundamental, which are connected and overlap, coexisting in a complex interaction, *complementary* to physiological systems functioning (nervous-endocrine, respiratory-circulatory, skeleton-muscular, tegument systems, etc.). Our model was presented in detail in a previous number of the review [7, 8, 10]. Communication between interfaces is encoded, codes being specific for each couple of interface and for the whole interacting assembly of the body. One of the codes is better studied today: *the genetic code*, which is structured at molecular and macromolecular level in what we called *Physical-chemical interface*. Every functional system of the organism led to elaborating a code for the specific signals, which ensures stability and, at the same time, man's variability and evolution. We started from the hypothesis that racial differences – skin color, shape of the hair, etc. – are the *biological adaptive functional codification* to the geographic, ecological environment, and, similarly, the *sanguine group ABO*. We highlighted an ecological bio-electrical typology existing at the level of the *human skin*, highly depending on this typology. Our skin is the first line with the external environment [6, 15].

The objectives of the present paper are to submit to the specialist's attention:

- the human individual in the interface hypostasis, capable to characterize different types of *Homo sapiens*;
- the “project of one's own anthropological biography” made out on the basis of our theory of interfaces [9];
- the applied value of the interface concept through the anthropological project.

MATERIAL AND METHODS

We used as materials the results of our anthropological researches on population, complex inter-disciplinary and individual-longitudinal researches present in the integrums [Annuaire 1998]. We also used the three informational archetype models built on the basis of our experimental researches in the field of “individual anthropology” and based on the multitude of man's models already existing in the specialized literature [10]

Another type of material we used was the “project for one's own anthropological biography” drawn up according to the models presented above and tested on a few heterogeneous groups of human individuals.

The *system quality* of the human being plays an essential part in its preservation; the *interface quality* ensures its transformation and evolution. The couple of concepts *system / interface* proved to be extremely useful from the methodological point of view in order to draw up the project and to understand the interdependence of the individual, society and environment in a new vision. The study hypothesis was the fact that the human being behaves, from very many points of view, like a series of interfaces, similar to the interface in the computer technique, having a lot of functions and roles. The “race” outward signs are comprised in the first of these interfaces – ecological-integrating interface – figures 2, 3.

The main hypothesis of the paper, stated above, was the result of successive stages of study in which we demonstrated a few preliminary hypotheses:

- There is a *functional-informational* similarity between the human being and the human society;
- The human individual studied in his ontogenetic evolution is presented in a series of time-interfaces that may be considered as representing a population proper;
- Man is a system integrated in life environment by means of informational forms of his internal environment similar to those in the external environment;
- Man has his own *individual bio-electrical informational fields*, called by us “auras” that are means of interaction and communication in the ecological and social-cultural phenomena;
- Simultaneously there is a cybernetic and an integronic informational transfer between population and individuals;
- The specifically individual interfaces have correspondence in fundamental social and economic activity fields.

We consequently studied the correlation between the singularity of the human species and the uniqueness of the human being from the anthropological point of view, respectively between similarity and differentiating characteristics of the human individuals. The study is oriented towards highlighting the fundamental common aspects and the particular aspects, useful for finding the co-existence solutions of the individuals within the inter-population relations and the place of race concept.

The importance of our preliminary research results consists in *a new vision on the human individual as system/interface*, which explains the various communication and integration modalities, taking into account the various categories of peculiarities defined as interfaces.

The human being as a system behaves, from many points of view, as a series of interfaces, similar to the interfaces in the computer technique, having a lot of functions and roles.

RESULTS AND COMMENTS

The tegument is continuously exposed to fluctuation in temperature, solar radiation, friction, and various biological and chemical agents. Furthermore, our skin as an adaptive organ, also presents a barrier toward the internal milieu so that

fluid balance and bio-electrical homeostasis is maintained. We create *a model* of the tegument as interface:

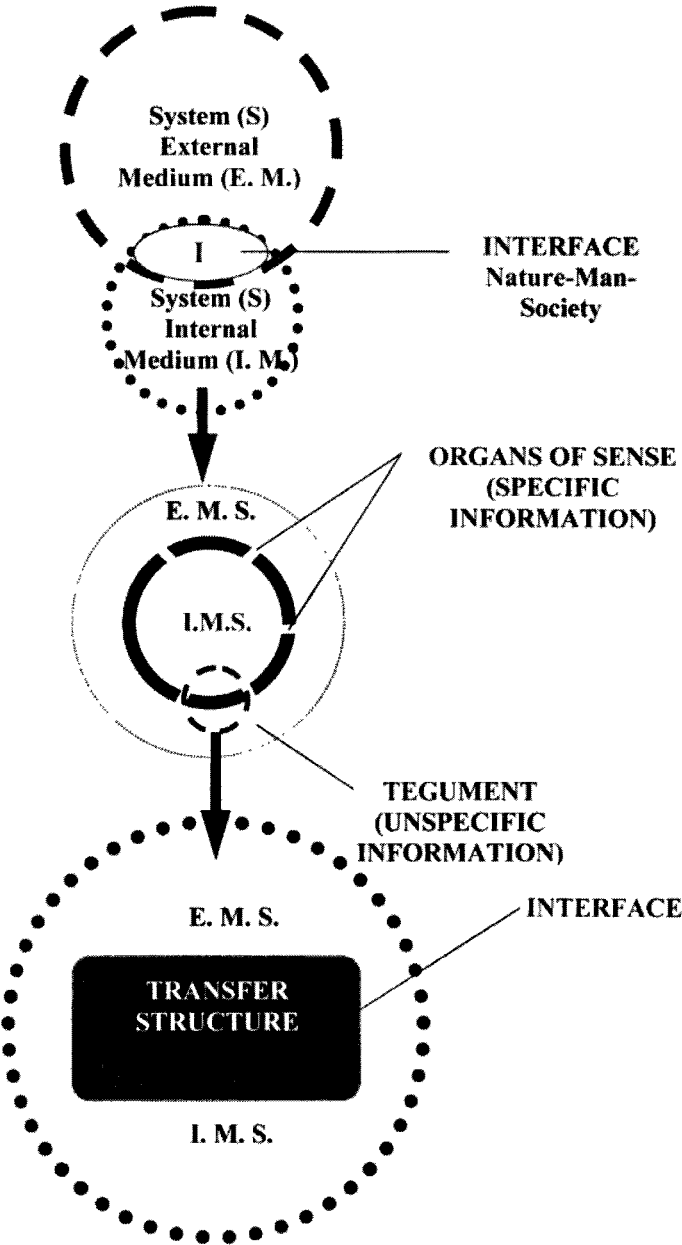


Fig. 1. – Model of the tegument as interface.

I propose a scientific methodology by interface theory for the study of the race in the laboratory of the individual's anthropology, which can demonstrate the real biological role played by race characteristics to stop forgery and destructive debates about it. Starting from this methodology we built a theoretical modality for analyzing the race through *ecological interface with the following sequences*: 1. Interface definition; 2. Key concept 3. Key problems-questions 4. Solution of coexistence 5. Applicable features 6. Anthropogram.

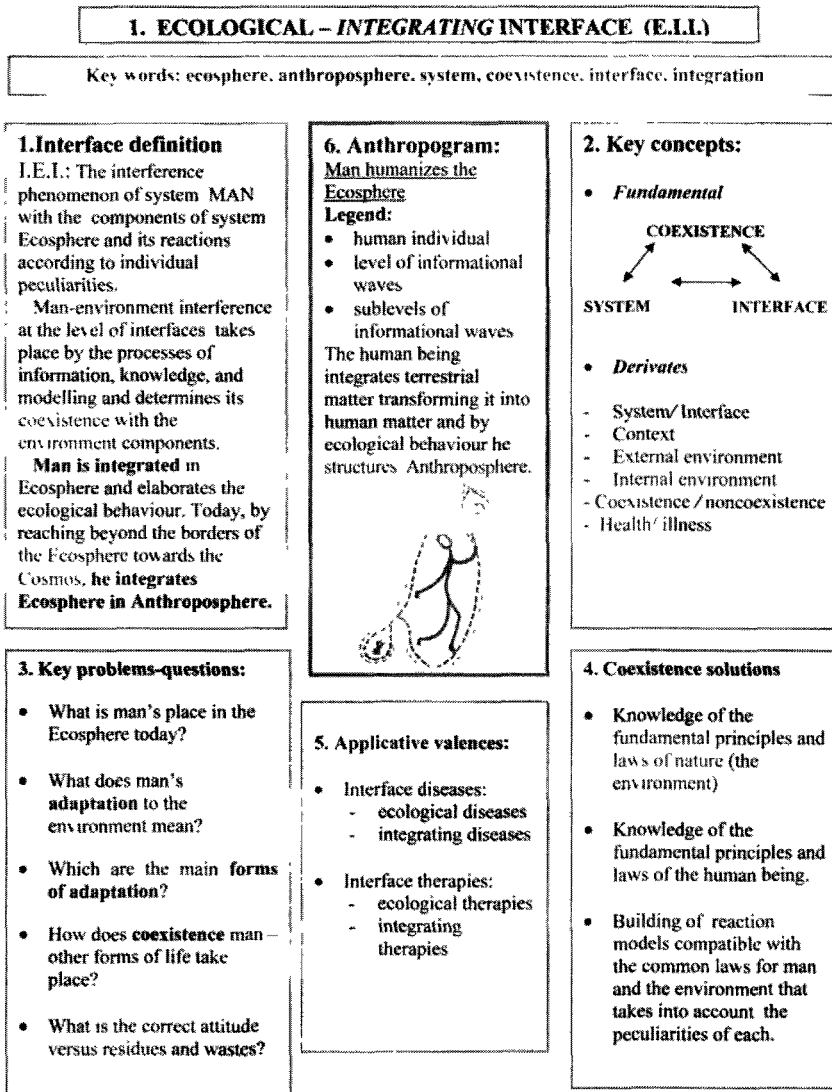


Fig. 2. – Modeling of the first interface: 1. Ecological – Integrating Interface (E.I.I.).

A correlative analysis of anthropological data* and knowledge was carried out, projecting certain model scenarios, with a view to simultaneously and successively present certain pluri-dimensional components resulting in synthetic schemes and images. The unifying way of this methodology is the interface aspect, ensemble of qualities – hypostasis, of the human being

**Datum – a model of information representation, accessible to a processor – man, computer processing unit, model-program operating for getting new information*

Considering the human being as an elementary entity, as a component part of the human society, as responsible interface, in society and the environment, may offer answers to conflicting problems resulting from lack of information. The “project of one’s own anthropological biography” made out on the basis of our theory of interfaces [9]

The methodology used for the present project has in view the human being in the interface hypostasis (I), i.e. in permanent interaction with oneself, the environment and the fellow beings, in both successive and simultaneous sequences. The methods mainly used are those of comparison and typologies

- the name of each interface in the project is made up of two terms

- ◆ the first term refers to categories of *general phenomena* in nature, to which man also belongs, and with which he has various degrees of resemblance, the highest resemblance degree is found with the individuals of the same species

- ◆ the second term defines categories of *specifically human phenomena*, they also highlight the individual peculiarities, determining the process of human VARIABILITY and that of differentiating until the “performance” of unique personality is attained

- One’s own anthropological biography will comprise the sum total of information that characterizes the person’s complexity. The information is organized according to the anthropological model of the human being studied as interface (I): Ecological-integrating I Psychic-conscious I Biological-cultural I Cognitive-axiological I Physical-chemical-sentimental I Cyclic-evolutive I Spiritual-transcendent I

It is important to remake the plan of the interfaces divided in a balance, accompanied by specific question which will give to cover of individual

a. Resemblance with other human individuals on the ecological-integrating level (comparatively):

- The intensity of the communication system with the Ecosphere – coexistence with the other environmental systems: strong, average, weak, absent,

- The integrating level the person assumes among the Ecosphere systems: higher, equal, lower,

- Description of one’s own person with the key concepts

1. ECOLOGICAL - INTEGRATING INTERFACE HYPOSTASIS (E. I. I)

Key concepts: system, co-existence, communication

a. Resemblance with other human individuals on the ecological-integrating level (comparatively)

- The intensity of the communication system with the Ecosphere - *coexistence* with the other environmental *systems*

Discussions

strong ☐
 average ☐
 weak ☐
 absent ☐

- The *integrating* level the person assumes among the Ecosphere *systems*

Discussions

higher ☐
 equal ☐
 lower ☐

- Description of one's **own** person with the key concepts: ♣ placement within typologies
 ♣ **somatic constitutional type**

longilinus ☐	height (H).....
brevilinus ☐	weight (W).....
intermediate ☐	ratio (H/W).....

♣ **physiomic type** (the form of the face and its components)

oval ☐	eyes.....
triangular ☐	nose.....
round ☐	mouth.....
rectangular ☐	ears.....
trapezoidal ☐	etc.....
eyes colour ☐	skin colour.....

♣ **cephalic type**

front-rear diameter (D_{fr}).....
 side diameter (D_s).....
 ratio (D_{fr}/D_s)..... > 1 = 1 < 1 ☐
 head circumference.....hair form.....hair colour.....

♣ **bioelectrical type**: dielectric... hydroid.. mineral... semiconductor... mixed...

♣ **voice intensity in usual communication** (speech)

strong ☐ average ☐ weak ☐

Fig. 3. – Ecological - Integrating Interface hypostasis (E. I. I).

(Fig. 3 continued)

b. Peculiarities versus other human individuals

. Outstanding **ecological-integrating** characteristics - peculiarities (that are not specified under item a)

.....

. The **integration** degree within the ecological environment (he informs himself, learns, shapes)

great ☐ average ☐ weak ☐ absent ☐ anti-ecological ☐

c. The role played by peculiarities in life

. Moments in one's personal experience in which **peculiar signs** had a decisive role.....

.....

d. Conflicting states caused by the relationship between resemblance (a) and peculiarities (b)

. Signaling of inner conflicting states in which the characteristics of **interface I.E** are implied

.....

.....

. The ratio between the degree of **ecological co-existence** and **environment integration** at one's own requirements:

- natural co-existence > anthropical integration ☐
- natural co-existence = anthropical integration ☐
- natural co-existence < anthropical integration ☐

e. Non equilibrium (diseases) caused by the conditions in the natural and anthropical environment

- . Ecological non equilibrium (endemic and epidemic)
- . Integration non equilibrium (adjustment)

f. General remarks on one's own interface I.E.

.....

.....

PLACEMENT WITHIN TYPOLOGIES:

• **somatic constitutional type:** longilin, brevilin, intermediate, height – weight ratio (H/W), **physiognomic type** (the form of the face and its components): oval, triangular, round,

rectangular trapezoidal, **skin color, eyes color, nose, mouth**

• **cephalic type:** front-rear diameter-side diameter ratio, head circumference, **hair shape, color and texture**

• **bioelectrical type:** dielectric, hydric, mineral, semiconductor, mixed

• **Voice intensity in usual communication** (speech): strong, average, weak

b. Peculiarities versus other human individuals

c. The role played by peculiarities in life

d. Conflicting states caused by the relationship between resemblance (a) and

The ratio between the degree of ecological co-existence and environment integration at one's own requirements:

– natural co-existence > anthropical integration

– natural co-existence = anthropical integration

– natural co-existence < anthropical integration

e. Non equilibrium (diseases) caused by the conditions in the natural and anthropical environment.

In the REMARKS column suggestions may be put in for improving the project draft.

The methodology we use is in line with the tendencies of present anthropology, developing a new field, distinct from the others, i.e. the Anthropology of the individual.

The inter- and transdisciplinary approach which grants originality to the paper is based on integronic thinking focusing on the interface concept and on the syntagm of phenomena coexistence. The interface introduces new data and analysis criteria of the phenomenon man – Table 1.

• The importance of research consists in a new vision on the human individual as system / interface, which explains the various communication and integration modalities taking into account the various categories of peculiarities defined as interfaces.

• The project of the biography has the role of interface self-knowledge, self-experiment and self-diagnosis guide facilitating, by rendering conscious, modeling of the inter-human relations. All these depend on the resemblance among people and their great variability – which reveals that individuality that leads to uniqueness.

• This approach is useful at various levels of social-cultural organization. At this moment we consider that an inter-disciplinary anthropological test is required in order to prospect the human being. With an applied value this project unites the methodologies of the anthropological fields (biological, medical, sociological, etc.).

• The thorough study of the individual highlights the complexity of the way the informational transfer of the individual characteristics to population is made. In this way, each personality can be considered a particular synthesis of the population he / she belongs to.

Table 1

Correspondences between the human being interfaces,
the key concepts and the spheres of coexistence

HUMAN BEING SPECIFIC INTERFACES (I)	KEY CONCEPTS	SPHERES OF COEXISTENCE
Ecological – Integrating I. E I I	system, coexistence, communication	Ecosphere
Biological – Cultural I B C I	dynamics, transformation, evolution	Biosphere
Physical-Chemical – Sentimental I F C S I	structure, context, interaction	Geosphere
Psychical – Conscious I P C I	activity, field, consciousness	Psychosphere
Cognitive – Axiological I C A I	information, collective awareness, personal awareness	Noosphere
Cyclic – Evolutive I C E I	cycle, rhythm, time	Axiosphere
Spiritual – Transcendent I S T I	body, spirit, death	Spiritual Universe

DISCUSSIONS AND CONCLUSIONS

In the present social systems inter-group co-operation most often proves to be accidental and of short term. Durable social co-existence should be built on the compatibility of the two categories of the mentioned characteristics, *the common and particular ones* [2, 11, 12, 13].

Why ‘Anthropological Project’?

In order to get acquainted to ourselves, we have gathered texts from great thinkers, trying to use a new modality of regarding anthropology, and through it a new modality of looking at ourselves, at the common people around us, whom we should understand within the world surrounding us: variants biological context (benefic/ malefic) – physical, socio-cultural, cosmic, metaphysical, produces – coexistence (compatibility) and / or non-coexistence (non – compatibility).

We can synthesize the aspects presented above thinking by the following theoretical **integrating relation in mathematical and natural sense**:

{(natural co-existence + anthropical integration) = *Homo Geographicus* = Human Geographical Context Interfaces = biological variants of races}

The source of human diversity comes from two categories of factors, as shown before. Some are hereditary and therefore depend on the genetic structure of

the organism, others depend on the (physical, biological, social-cultural) environment and therefore are acquired, adaptive and educational.

The study of human variability and of the factors determining it indicates the existence of major groups of individual differences. They are connected to feature (aspect, character) of race, sex, age and culture. The variations caused by the cultural substratum and even some racial ones are acquired educationally; variability connected to sex and age is more dependent on the hereditary phenomena that set the development limits in which education and the environment establish the individual's "position" in each and every case.

The extent and interdependence of the hereditary, adaptive and educational factors in the formation of the human individual is a problem of anthropology, as it is one of the specific elements of Homo's evolution.

The study of variability from the physical and biophysical point of view in anthropology is little present in comparison with the above analyzed domains. Anthropology may bring arguments in favour of its statute as General Science about Man and Humanity through its capacity to build up patterns that should synthesize the huge amount of knowledge on the human being.

The patterns, irrespective of their representation form: abstract or concrete, mathematical, graphical, materialized in models, robots contain qualitative aspects and simplified quantitative data referring to the structure and history of the phenomena they model. There are countless patterns that contain various characteristics of man, such as: conformation, dimensional relations, morpho-anatomical, functional, genetic, cybernetic informational structures, etc. coming from biology, medicine, ergonomy, technics, art [3, 6, 12, 13].

PERSPECTIVES

- The couple of concepts system / interface proved to be extremely useful from the methodological point of view in order to draw up the project and to understand the interdependence of the individual, society and environment in a new hypostasis (vision).
- The methodology used for the present project has in view the human being in the interface hypostasis, i.e. in permanent interaction with oneself, the environment and the fellow beings, in both successive and simultaneous sequences.

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FOCUS GROUP IN THE ETHNOGRAPHY OF A BUCHAREST FACTORY*

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The paper is an approach of focus group as a qualitative field method within the social sciences, with a particular emphasis on an applied anthropological research in the Rocar factory, in Bucharest. Five focus-group sessions are described in terms of “problems identified”, “ideas and solutions”, and “recommendations for leadership”, as regards the management of human resources. While the results of focus group are useful for their intrinsic relevance in assessing local viewpoints and enhancing the public participation, they are to be considered together with the findings of other ethnographic methods, such as participant observation and the life-history interview.

In the anthropological and sociological literature, the focus group is described as a qualitative research method in collecting field data and accounting for the field informants' vision on issues related to who they are and what they do. David L. Morgan defines (1988) focus group as an “explicit use of the group interaction”, during around two hours, with properties like the informality and spontaneity at the level of 6–8 members; their dialogue is “like a conversation between neighbors and friends”. A moderator's usually low involvement is another mark in conducting a focus group following a given topic, with maintaining the rhythm and equilibrium of discussion (Morgan, 1988). While stressing the focus-group utility for empirical discoveries, but also its limits in testing hypothesis and approaching private concerns, John van Willigen proposes (1993: 145) the following definition:

“A focus group is a small group discussion guided by a moderator to develop understanding about the group participants' perspective of a designated topic.”

Sociologist Alfred Bulai presented (2000) the focus group starting from the empirical fact in which “people communicate naturally within a group framework and feel better within horizontal communication processes”. According to Bulai,

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the methodological accuracy of the focus group depends upon the application of (at least) two sessions during the same field investigation, and in similar circumstances. Similar to Morgan's indication, the number of participants may be 6–12, since (such as A. Bulai notes) there is no equation between a higher quorum and the information consistency and quality.

Among the limits that A. Bulai seizes in the focus-group method are its low statistical relevance, dependence on moderator, exaggeration in the opinions and attitudes expressed, and a series of “flock effects” (conformity, one's inscription in the framework of the group discussion).

Focus group in the human-resources management (Rocar factory, Bucharest)

In the autumn of 2001, I pursued a series of focus-group sessions as part of an extended research of the personnel in the Bucharest buses factory of Rocar. My fieldwork was conceived as an experiment in applied anthropology, to the extent to which the research findings were meant to contribute to a better management of the local human resources. At the time of research, the Rocar state factory was facing a long crisis period in terms of weak productivity, personnel “restructuring”, strikes against the government, and so on. Eventually (in 2004), the Rocar passed in the hands of some private “investors” interested more in the factory location and under-renting, than in its industrial improvement.

In the period August 2000–February 2001, I gathered multifarious ethnographic data on the Rocar personnel's working conditions, social life, economic resources, etc. (see Constantin, 2004). In order to identify in a holistic perspective the local social problems that occurred in-between such “human resources”, workers, foremen, and engineers were equally recruited as informants. That is why, I tried to understand the degree to which the economic hardships within the Rocar society were caused either by internal “factors” or by macro-social problems like the unemployment and inflation that were usually perceived as national-scale phenomena in the Romanian post-socialist economy.

As a result, I was to convene (between September 4 and November 5, 2001) a number of five focus-group sessions in the human-resources management of the factory. A notification signed by the director of Rocar (in June, 2001) allowed the focus groups in the following terms:

“[...] Focus groups should be organized within the framework of the Rocar factory, in order to stimulate our workers' commitment to participation into labor debate and also to enhance their professional responsibility and co-operation with the foremen and engineers.”

The roundtables were set up at the level of five distinct factory sections (Mechanic-Energetic, Forge, Dye Works, Final Assemblage, and Construction Chassis and Car Bodies), with participation of 42 employees (10 engineers, 12

foremen, 7 locksmiths, 2 finance accountants, 2 brigade chiefs, 2 welders, 2 dye workers, 1 bricklayer, 1 electrician, 1 mould worker, 1 presser, and 1 syndicate leader). In the attempt to consider as many viewpoints as possible, and to encourage both “top-down” and “bottom-up” dialogue and agreement on collective problems, my ethnographic approach consisted of inviting people pertaining to all the strata of the local personnel.

Following each of the above sessions, I wrote up reports comprising the “problems identified”, “ideas and solutions”, and “recommendations for leadership”. Participants and I signed all the reports; they were also sealed by the factory department for human resources.

The first focus group took place on September 4, 2001, within the Mechanic-Energetic section. The “problems” identified were “the lack of confidence in the possibilities of the factory leadership to cope with the economic issues”, the “ageing of labor force”, the “lack of measurable criteria for salary negotiations”, the “need for the assessment of technical knowledge”, and the “need for training of specialized personnel”. The “ideas and solutions” argued on the need for “periodical advisory sessions of personnel”, “employment of young graduates from specialized colleges and vocational schools”, “establishing technical criteria for assessing the working knowledge”, and “periodical tests for personnel”. As for the “recommendations” that were forwarded to the factory management, they foresaw “the monthly organizing of human-resources advisory sessions”, “employment of graduating pupils from the factory’s partner vocational school, on the basis of the foremen’s evaluation”, “establishing of a set of technical criteria in the personnel evaluation and payment”, and “the professional testing of personnel”.

At the Forge section, the focus group roundtable was set up on September 14, 2001. It drew attention on the “problems” of “personnel’s ageing”, “the decrease of personnel”, “subjectivism”, and the “lack of motivation because of the low payment”. In this case, the “ideas and solutions” considered the need for the “personnel’s rejuvenation”, together with “payment differentiation in accord with qualification and working results”, and the “making of a supplementary salary fund at the level of each section”. A “recommendation” was made in favor of an annual “competitive” allocation of a number of 3-5 jobs for those graduating pupils who are “appreciated by foremen”. Other recommendations sustained the need for “criteria of individual performance at a given workplace”, and the replacement of the percent basis in the salary growth with a salary fund according to one’s “merit”.

Another focus group (on October 1, 2001, at the Dye Works section) took into account the “problems” of one’s workplace “uncertainty”, “the need for qualified workers”, the claim of a “higher salary percent for the personnel with seniority”. “Ideas and solutions” were found in the “qualification through the vocational school”, an “employment policy for both young people and former employees” so as the “youth and the [work] experience” can equally count in the factory working process; the “making of a special [rewarding] fund for remarkable workers” was another possible solution proposed. This time, the “recommendations”

included a suggestion for the factory's partner school to train needed dye-workers, as well as the making of a set of "practical tests" to equally address the experienced personnel and the young graduates. The factory was proposed to procure funds for raw materials from the so-called "third demands" (coming other than from the Rocar's usual business partners).

The fourth focus group (the Final Assemblage section, on October 10, 2001) seized "problems" like the "lack of cooperation between the factory working brigades", the "lack of a will of payment differentiation because of the workers' desire to gain at equal rates", and also "renunciation to the system of payment in accord with the working categories, which leads to no interest in individual self-improvement". The "ideas and solutions" appealed for a "higher working involvement of the foremen or brigade chiefs", "psychological counseling for those discontented people", "evaluation and differentiation within brigades, with no technical testing since it can be subjective". "Recommendations" envisaged a "better preparation of supply with raw materials, without necessary assistance from the part of foremen", as well as "the factory leadership's involvement into collaboration between the departments, with the model of co-operation between the sections".

Finally, the focus group from the section of Construction Chassis and Car Bodies (on November 5, 2001) pointed out the "problems" of "renunciation to the system of payment in accord with the working categories", as well as the renunciation to the "innovation dossiers of personnel" and to the "employment of young personnel, which would entail the risk of not to assure the transfer of technical knowledge to the new generations". "Ideas and solutions" were conceived as for the "workers' evidences of technical innovations", "preferential employment of younger ex-workers and young people trained in the factory". "Recommendations" considered the "technical testing to complete the criteria of salary negotiations", as well as the "reward for the workers' innovations" and the "employment of capable young graduates of the factory's partner school, at those workplaces available with the current workers' retirement".

Between November 2001 and February 2002, the workers from the Rocar engaged in several strikes against the government (at the time, the owner of the Rocar factory to a share of 68%). In June 2002, the Rocar factory's economic counselor was to appreciate the findings of the above focus groups as follows:

"Insufficiency of the mutual communication and advising between the categories of personnel in the Rocar factory [...] has among others caused the deepening of the social tensions in our factory."

Concluding remarks

Relevance of focus group as a field technique in social research consists not only of its potential for qualitative data records and for efficiency in assessing "insider" points of view on local issues, experiences, mentalities, etc. Focus group is also important in applying anthropology as a means of simply "putting people

face-to-face”, so as they can share authority and enhance their own public participation. As seen above, many of the local “problems”, “ideas and solutions”, and “recommendations” are common to the Rocar, such as “ payment in accord with working seniority categories”, “rejuvenation of personnel”, “merit in the personnel salary”, “reward for one’s innovation”, and so on. Nevertheless, such topics are difficult to identify and validate outside of such “interplay” between the people directly concerned.

We do not exclude the possibility of some of the “methodological risks” (like “exaggerations in opinions”, or “conformity”) in conducting focus-groups in a manner such as we did. (The frequency of the “salary” issues is obviously significant for a certain preoccupation for reward and motivation, before “innovations”, in the quality of the social relationships within the Rocar personnel). Our focus groups, however, dealt with an “organization” and with employed “human resources”, not with a local community in the ethnographic meaning of the term. That is why the accuracy of focus group – even “holistic” in its composition and debate – depends on its association with other field methods, such as (in the case of the Rocar factory) participant observation and life-history interview (see Constantin, 2004).

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Christiane Klapisch-Zuber, *La maison et le nom. Stratégies et rituels dans l'Italie de la Renaissance*, Editions de L'École des Hautes Études en Sciences Sociales, Paris, 2002, 330 p.

L'ouvrage de Klapisch-Zuber consiste en quinze essais sur « les structures, l'idéologie et l'imaginaire de la famille et de la parenté », au niveau des unes « pratiques et rôles familiaux » dans la République de Florence à l'époque de l'Humanisme et de la Renaissance (les siècles XIV–XV). L'autrice base son enquête sur le livres de famille (les *ricordanze*) des « Maisons » (= des grandes familles et lignages) florentines. Le « champ » d'analyse du livre est donc d'ordre historiographique, mais la structure de celui-ci – la transmission de la parenté, les échanges matrimoniaux et les alliances spirituelles, la famille et les rôles culturels des deux genres – fait situer toute la démarche à la confluence de la science historique avec l'ethnologie. En fait, Klapisch-Zuber reconstitue les cadres sociaux et les normes culturelles du monde florentin renaissant, grâce à une approche qui rappelle de la « micro-histoire » du village occitan Montailhou (chez Emmanuel Le Roy Ladurie, 1975), ce que d'autres historiens français de l'École des Annales – Pierre Vidal Naquet, Jacques Le Goff, Jean-Claude Schmitt – définissent en tant que « anthropologie historique » (une dénomination formulée aussi par l'autrice, dans son introduction).

Klapisch-Zuber constate d'abord une « invention du passé familial » à travers les chroniques de familles – les *ricordanze* – qui couvrent les relations de parenté des familles aristocratiques de Florence durant quelques quatre ou cinq générations (autour de 200 années). Il s'agit d'un « travail généalogique » de « salvation du passé familial dans les conditions de l'aléatoire social », opérant quand même par une écriture masculine qui se préoccupe du lignage, non pas d'une parenté bilatérale, et du héritage masculin, en excluant de telles généalogies des hommes les personnes marginales ou non-accomplies du point de vue économique. Par exemple, une « généalogie dynastique » d'un marchand vivant environ 1379–1421, met en évidence les fonctions communales importantes des ancêtres (comme la figure du gonfalonier), de même que les stratégies matrimoniales des filles, des sœurs ou des grandes-filles, avec des banquiers ou commerçants des autres quartiers, et de « remplissement du vide » d'entre le reste des consanguins par des relations avec les « *amici* » (des partenaires d'affaires et, à travers le parrainage, des compères) du voisinage.

La parenté spirituelle (qui, elle aussi, est le plus souvent masculine) laisse le choix du prénom de l'enfant à la volonté des pères banquiers ou marchands, qui font transmettre ce prénom même pendant trois générations, comme une « solidarité lignagère » et un « devoir de refaire » un ancêtre. En ces conditions, l'accent est mis sur le comperage, non plus sur le parrainage – les parrains ne sont que des auxiliaires du baptême, sans des ingérences dans les affaires de la « Casa ». Le comperage apparaît alors comme une « amitié instrumentale », ce qui favorise des relations de clientélisme dues à la pratique (à peine acceptée par l'Eglise) du baptême des enfants par les membres des collèges politiques ou corporatifs. Après 1450, on va aussi se développer une « endogamie spirituelle » des élites, par une égalité statutaire entre les parrains et leurs filleuls qui aboutit le pourcentage de 90%.

L'ascension de la bureaucratie pontificale allait être suivie, vers 1500, par une préoccupation de la noblesse communale romaine de restaurer la « libre république ». Un tel noble – Marco Antonio Altieri – recommande (à l'appui de la « cohésion sociale ») un retour au cérémoniel nuptial traditionnel, voire antique. Les mésalliances de l'aristocratie de son temps auraient déprécié (selon Altieri) la parenté d'antan et c'est ainsi qu'il encourage les pratiques rituelles populaires (tel le dîner de tous les invités aux noces, sur les degrés de leur parenté). Le mariage florentin, caractérisé par la persistance des unes anciennes formes de contrat matrimonial, est corrélat du point de vue juridique par les autorités communales locales, non pas par l'Eglise, du moment que le don de l'anneau par le mari (comme l'acte qui permet l'union conjugale) se fait devant le notaire, non pas le prêtre. Davantage, en 1430 l'état florentin institue une assurance-dot afin d'assurer le mariage, à condition que le père de la fille constitue un dépôt bancaire avant le mariage de celle-ci. Klapisch-Zuber relève,

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dans le même contexte, l'importance des échanges reciproques d'entre les familles le moment du mariage le « trousseau » de l'épouse (des valeurs mobiles, des parrures, des objets de toilette etc), qui représentent la dot, est contrabalancée par des dons de la part de l'époux. Le nombre des anneaux que l'épouse recoit en tant que dons joint en ce cas un rôle d'intégration et de delimitation sociale de celle-ci à l'intérieur du groupe des femmes aristocrates. Comme la femme n'est pas tellement une « vitrine de son mari », mais un « support de la rivalité des deux groupes parentaux concurrentes, il y est question d'une « larguesse » des dons inclus dans le trousseau, ce qui échappe à toute calculation, et qui va contraindre l'époux en offrant des bijoux et d'autres dons somptueux, afin qu'il conserve son prestige. Encore une fois, cependant, le republique (marchande!) intervient – en 1415 – en limitant par une législation somptuaire le nombre des invités aux noces, de même que les cadeaux coutumiers de ceux-ci, avec la motivation de la « spirale inflationniste » que ceci provoquerait.

Une autre restriction de l'état (datée aussi en 1415) vise la célébration bruyante des noces par les « charivari », des musiciens nocturnes dont la pratique *mattinata* – indifféremment qu'elle proclame un nouveau couple, ou qu'elle reprouve un mariage atypique. Le vacarme de telles parades ciblait également certaines intérêts matériels ou moraux des uns mariages (comme dans la situation des remariages qui défavorisaient les fils du premier mariage). Corrélés d'une manière hypothétique aussi avec la possibilité d'un déséquilibre du « marché matrimonial » local (ce qui reste, quand même, difficile à attester au niveau documentaire), les « charivari » sont par conséquent défendus en évoluant désormais avant les églises, le conseil municipal, ou dans les cas de remariage des veufs et aussi chez les maisons avec des funérailles.

D'une façon ou d'une autre, Klapisch-Zuber évoque la « ossature masculine » des généalogies de Florence : ce sont les hommes qui « font » ou représentent les « maisons » nobiliaires locales. Mais qui est le statut social d'une veuve lorsqu'elle peut récupérer sa dot le moment du décès de son mari ? Le remariage de la veuve risque à causer l'abandon des enfants nés du premier mariage, étant donné que ceux-ci poursuivent rarement leur mère chez les parents ou chez le nouvel domicile de celle-ci. L'imaginaire florentin opère ici la disjonction d'entre la « mère cruelle » qui met ses intérêts, ou ceux de son lignage, avant ses enfants, et la « bonne mère » qui, sans se remarier jamais, se consacre au soin de ses enfants. L'engagement maternel dans la croissance des enfants fait dégager en même temps une signification particulière lorsque l'autrice présente (à travers l'étude de 318 enfants florentins du XIV^e-e siècle) la pratique de l'allaitement salarié, ou le « nourrissement mercenaire ». En effet, les riches familles de Florence confient assez couramment (contre à une rétribution) leurs nouveaux-nés à une femme de la périphérie de la cité et surtout des territoires ruraux de la république. En fait, il s'agit d'un contrat conclu non pas avec les nourrices, mais avec les maris de celles-ci, du moment qu'ils négocient le salaire et contrôlent l'allaitement. Le critère du choix dans des cas pareils est l'abondance et la « jeunesse » du lait acheté, les parents naturels sont ceux qui décident aussi le moment du sevrage (19-21 mois). Lorsque les enfants arrivent à mourir (17%), les mêmes parents commanditaires ne font d'autre qu'appeler la justice divine, dans une époque dont les moralistes recommandent le choix d'une nourrice qui ressemble à la mère, afin que la première soit capable d'enraciner les qualités maternelles au nourrisson.

L'éducation des enfants comporte d'abord une « pédagogie de la dévotion », par l'intermédiaire des « *bambini* », à savoir des poupées parées de perles, qui accompagnent les trousseaux des mariées. Les « *bambini* » représentent Jésus, la Sainte Vierge, aussi des saints divers ou des auteurs célèbres de l'époque (par exemple, Donatello). Transmis de la mère vers la fille et livrés comme tel au mari, ces « jouettes » des femmes adultes réfléchissent (selon Klapisch-Zuber) « les tensions et les frustrations » des femmes, isolées de leur enfance, soumises à leurs époux et séparées de leurs enfants du moment même de la naissance de ceux-ci. Plus important, peut-être, on ainsi arrive à une identification des enfants avec les « *bambini* », comme lorsque les garçons expriment leur dévotion pour leur « mère » Sainte Vierge, et les fillets assument un « apprentissage de l'attitude maternelle ». Alors qu'on ne permet pas aux filles l'éducation scolaire en dehors de leurs maisons, les fils poursuivent une telle instruction publique, assistée soit par un prêtre, soit par un pédagogue. Environs

1340, le nombre des élèves florentins (en majorité, des garçons) était estimé à 8-10 000. Les parents veufs préféraient à une alphabétisation des leurs filles orphelines, une recluse de celles-ci dans une monastère, afin d'y « conserver leurs virginités » pour le mariage voulu. Un résultat de cette situation est la distinction d'entre « le temps public, fractionné et cumulatif » des garçons, et « le temps privé et répétitif des tâches domestiques », chez les fillettes. La conclusion de l'autrice est que « des barrières culturelles omniprésentes font de l'écriture un quasi-monopole des garçons ».

Christiane Klapisch-Zuber met ainsi en lumière une partie de l'univers de la vie familiale en Florence des siècles XIV–XV. Ses moyens sont ceux de l'historien des chroniques de familles, sa perspective est, comme vu, ethnologique : l'étude des institutions de la parenté. En dépendant du document écrit, mais en l'exploitant au maximum, cette reconstruction couvre le « segment » des familles aristocratiques locales, voire des « maisons » nobiliaires intéressées en perpétuer leur lignage, patrimoine et « nom ». Le fait que telle « anthropologie historique » n'est pas holistique, ou que celle-ci semble parfois refléter une certaine vision des études contemporaines de genre, est moins important par rapport à l'effort minutieux d'identification et de définition des unes structures et articulations parentales d'il y a plus de cinq siècles. Nous allons trouver ici peu de détails à l'égard de la politique territoriale ou commerciale de la Florence au temps de la Renaissance, ou sur le fonctionnement du système républicain de gouvernement de celle-ci. Pourtant, l'étude des « maisons » florentines et des relations locales de parenté fait dévoiler précisément le système social sous-jacent à celui politique, si privilégié par les historiens classiques. Klapisch-Zuber ne se réfugie pas, par son enquête sur la parenté, dans une sphère an-historique et discrète du privé, mais, au contraire, elle envisage la dimension publique, culturellement partagée, des normes qui édifient un tel système privé. Les maisons florentines sont légitimées par des généalogies leur passé familial, développer des « stratégies » matrimoniales et patrimoniales, socialiser d'une manière adéquate leurs descendants, mais toutes ces choses respectent ou suscitent une législation communale et engageant (dans des degrés différents) le conseil municipal et l'Eglise. C'est à ce point (nous le pensons) que « la grande histoire » rencontre et reconnaît « la micro-histoire » et l'ethnographie des « communautés petites ». Il est naturellement question d'une « rencontre » et « reconnaissance » méthodologique, à des « échelles » différentes mais complémentaires, de la complexité et de la cohérence du comportement humain.

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NOTES FOR CONTRIBUTORS

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